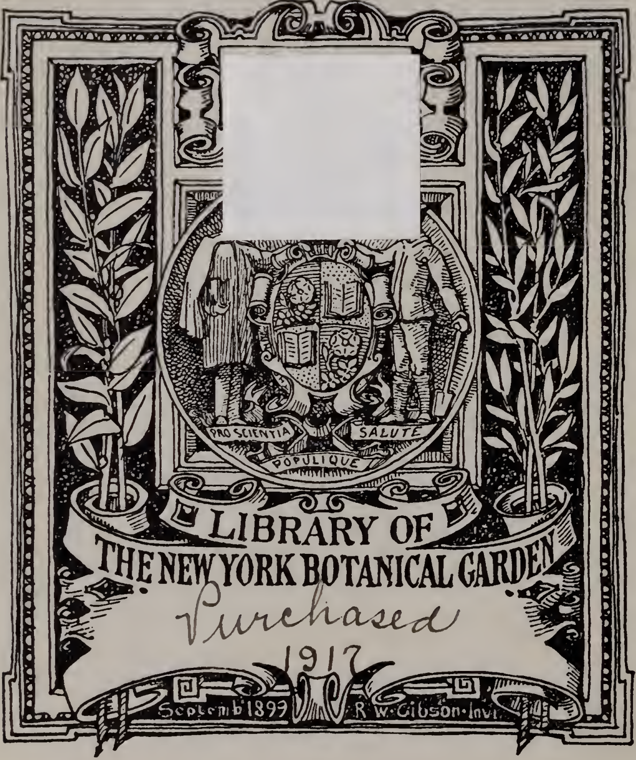

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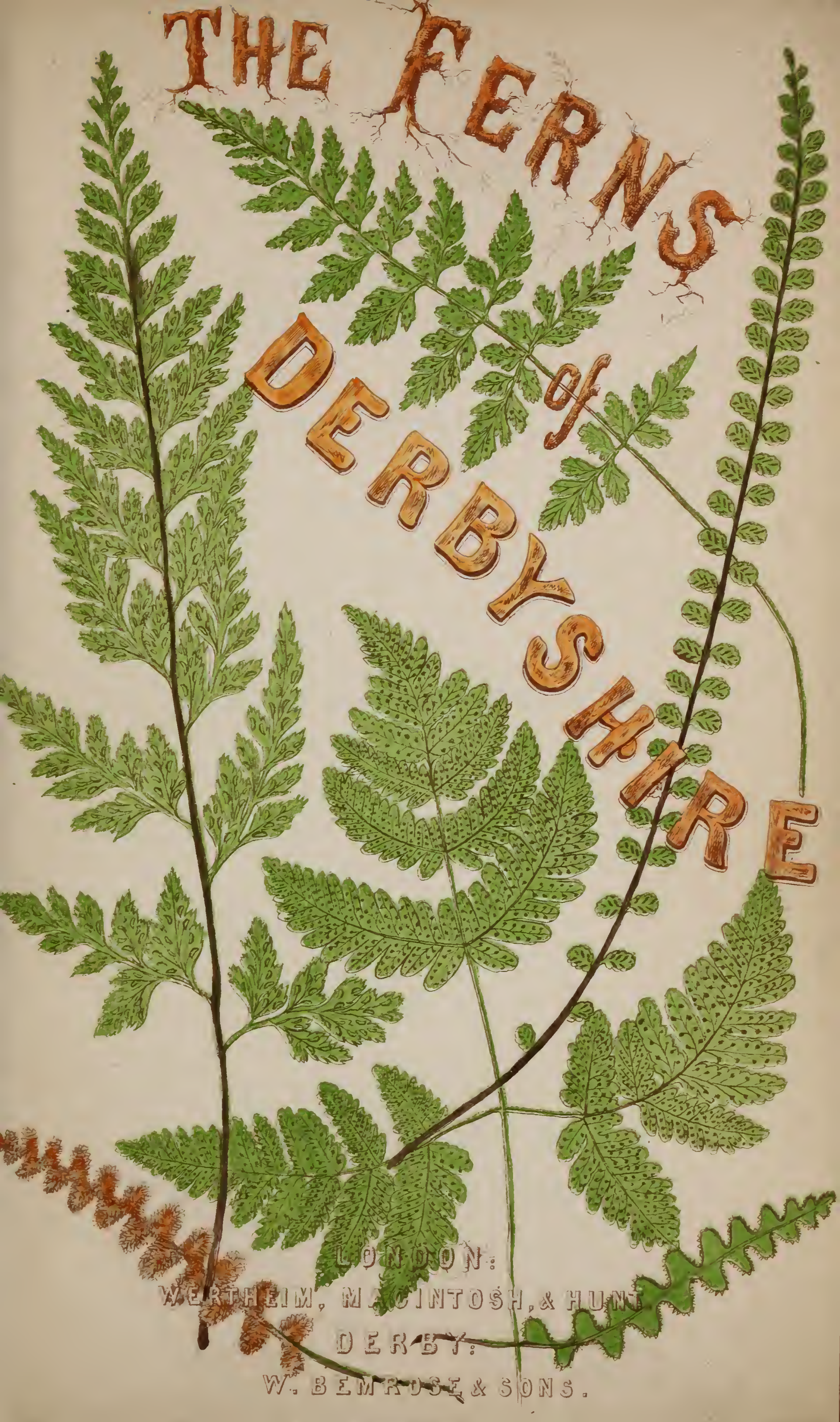

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THE FERNS
OF
DERBYSHIRE,
ILLUSTRATED FROM NATURE.

EDITED BY
W. E. HOWE

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GARDEN

WITH A PREFACE BY THE
Rev. GERARD SMITH, B.A.
OF OSMASTON, ASHBOURNE.

> "He rests me under the covert of fern, and gently guides me by the still waters."
> Psalm xxiii. 2. *Literal.*

> "A canny soft and flowery den,
> Which circling brakes have made a bower."
> Allan Ramsay.

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GARDEN

THOUGHTS AND MEMORANDA UPON FERNS.

Ferns, as favourite objects of interest with the botanist and with the lover of plant culture, begin to take their place both in the border and in the garden-house, and are no longer excluded from that station among domesticated plants which they ever hold in the wild state. By this attention to Ferns, the cultivator is greatly the gainer; for who is not conscious of a deficiency, even in a roadside bank that is destitute of Ferns? Independently of beauty, gracefulness, and variety of form, and of long continuance in vigour through the summer season, Ferns possess peculiar interest, both in their identity with their own tribes from all antiquity, in their great importance to this country as constituting a considerable part of coal, and also in their botanical structure. We may look upon a Fern, as upon a work fresh from the hand of the eternal Creator, for no attempt to hybridise the species has succeeded; and we feel that we are carried back to the beginning, and that we see each kind the same as it was then—the "deshe," or "sprouting plant" of Gen. i. 11, 12.—an unchanged and unchanging link of time between the present and all the past. And this interest becomes with us, in this country, yet greater, when we are reminded, that we stand and look upon the Ferns of a temperate clime, flourishing upon a soil which contains the entombed remains of vast tribes of the same plants, once abundant on the same localities, but natives of warmer regions; that during the immeasurable periods of the formation of coal, when tropical reeds and conifers, lycopods, and Tree Ferns adorned this land, the scenery of our vegetation resembled that of the warmest parts of New Zealand, and of the islands in the same latitude. Nothing short of a visit to such localities could give an adequate idea of the Fern scenery of Ancient Britain, or exhibit the damp shaded ravines and gullies of sub-tropical countries in which this beautiful order reigns in profuse luxuriance; where the Tree Ferns attain their most exalted height, and spread in drooping loveliness a crown of fronds from six to eighteen feet in length, from an erect taper stem, often exceeding twenty feet in height; and where the trailing species hang from stem to stem, and crag to crag, in festoons and fringes of the deepest green; while beneath, elegant, featherlike, or broad and swordlike fronds form a soft cool carpet; while every cliff is crowned with an overspreading mantle of maidenhair, and the very chinks through which the water drips and runs, are lined with the more minute species: even the watery marsh displaying its wiry luxuriant *blechna*, and the dry rocky plains rendered cheerful and bright by the wildest profusion of brakes and *polypodia*. Coal was evidently formed by the deposit of the fronds and stems of tropical Ferns, and of other plants; parts of the foliage, &c., being sufficiently preserved in some cases, to show the fruit and cellular texture of the tribes. It is not probable, however, that one species of that primitive Flora has survived; the Ferns of our times being peculiar to cooler regions, and attaining to less exalted stature and profusion.

But no less interesting are Ferns in point of Structure. They originate from a minute bud or bulb, which in a dust-like form is familiar to every one who has handled the fronds, proceeding from brown chaffy spots on the lower side: we find no blossom, no pod or berry, no true seed in the whole tribe. If the result of exact observation be correct as to the structural laws of this family, the earliest stage of a germinating fern-bud (commonly called the *seed*), exhibits the only *true flower of the plant*, from which the whole after-growth, even to the height of a tree of thirty feet, springs forth; and which must be regarded, so long as it exists, as an ever new and freshly sprouting seed-vessel. That flower springs from the under surface of the earliest fern-leaf, which is in form like a liverwort; and the anther, from the anther-bearing flower, which conveys the vital principle to the fruit-bearing flower, is in form akin to a minute hairy worm, and swims actively in water, as in the *Algæ*, and in the *Confervæ* of fresh water. This anther descends into the fruit-bearing flower, and impregnates the germ of the future plant. From that germ arises a cellular body, out of which at length springs the first *fern-frond*, and on that frond are found the bare or covered capsules, mostly furnished with an elastic spring, which contain, and in due time discharge a light, minute, and copious dust, every particle of which, if perfect, may be regarded as a *bulb* or *bud*, capable of vegetation, but not possessing cotyledons, or any of those symmetrical characters which distinguish the germinating seeds of true flowering plants. Thus the first stage of fern-life is all that can be compared with flowering plants, and is minute and remote from observation: the second stage is what we call the Fern, and may be compared to a multiplied seed-vessel, of which the seeds are buds or bulbs. A very clear and full description of the structure and functions of the parts of inflorescence in Ferns, is given by Dr. Goode, in an article upon the Physiology of Ferns, in the *Reliquary,* Vol. i. p. 35—37.

This elementary account of the Fern tribe, as being a group of Bud-seeded plants, leads to the explanation of the terms employed in this and in other works on Ferns, in describing the individual species. The true fibrous *roots* of a Fern are distinct, generally, from the more or less underground, and often prostrate and creeping stem, or *rhizome,* which is, however, called *caudex,* when, being erect, it tends to become an upright trunk: from this the stalk of the fronds arises, which up to the leafy part is called the *stipes,* and above the leaf, or division of the leaf, it becomes the *rachis.* This central stalk is sometimes branched, and that mostly by forking: and from it, more or less numerous *veins* branch into the flat substance of the leaf, which when branched again are called *veinlets;* the veins and veinlets are sometimes called *costæ* and *costules.* If the veins do not branch, they are described as simple; when they branch and so end, they are said to be *forked* and *free:* if, however, they unite at their extremities and form a network, they are said to *anastomose,* and the spaces thus enclosed by the united veins, are termed *areoles.*

The whole leaf is called a *Frond;* if undivided, it is considered *simple;* if it divides, and the divisions are stalked, each stalked division is called a *pinna.* If a pinna be again divided, and the divisions stalked, such secondary divisions are called *pinnules.* These stalked divisions of the main leaf are often multiplied two or three times. But if divisions of the main leaf occur, which are *not stalked,* such a frond is said to be *pinnatifid.* Each mass of fruit on the frond is called a *sorus* or heap, and usually consists of many membranous capsules, thecæ or *sporangia,* with or without an *elastic* ring. The ring is designed to aid, both in the bursting of the capsule, and in the dispersion of its contents. If a frond of the common Hartstongue be gathered on an open day in winter, and the under surface be suddenly exposed to the sun, and the result observed with a magnifier, this phenomenon of the dispersion of the *spores,* or seed-buds, may be seen to great advantage. The *sori,* or bundles of capsules, are sometimes elevated upon a flat or saucer-shaped *receptacle;* and sometimes arranged round a stalk: rarely, the capsules lie solitarily, or in pairs, upon the frond itself. The *sori,* again, may be observed to be covered with a membrane, called an *indusium,* or *involucre,* or they are *naked.* From these characters, and from the form, arrangement, absence, or presence of them, Ferns are divided into tribes, genera, and species. Species are the distinct kinds belonging to one genus; genera are the distinct forms belonging to one tribe. And species may be further divided into varieties; as the Hartstongue, *Scolopendrium vulgare,* has no less than sixty-five marked variations from the simple or normal form, catalogued by cultivators of the species.*

Collectors of Ferns, whose knowledge of the primary characters of a species has been confined to the study of a few fronds, perhaps of one only, upon a limited locality, are often tempted to assume unusual deviations from the primary characters, as proofs of a distinct species: and by this means, the names of Ferns have been greatly and inconveniently multiplied. There is no necessity to give a name to every variety of form: the true botanist can wait for more exact and comprehensive acquaintance with characters which do, and do not, distinguish species: and when, by experience, he is able to determine such marks, imaginary species fall back into the ranks of varieties; or he is able, with the confidence of accurate observation, to pronounce *that* a true species, which by others may have been incorrectly regarded as a variety of some other form.

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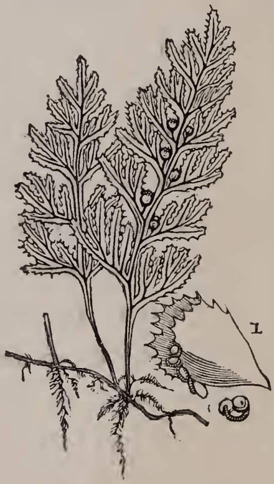
* See Vol. v. pp. 156, 157, Ferns Brit. and Exotic, by E. J. Lowe.

The species recently observed in Derbyshire are twenty-two, all of which are figured in this volume: there are a few species and genera which might have been looked for, especially in the more elevated parts of the county, and which may even yet reward the exact scrutiny of persevering search. Such are *Hymenophyllum* — the *H. Tonbridgense,** and *H. Wilsoni* † — our *Filmy Ferns,* which creep over the surfaces of wet rocks, and resemble Jungermannias more than Ferns: — *Cryptogramma crispa,* and *Asplenium septentrionale, alternifolium,* and *lanceolatum; Polypodium Thelypteris* also, and *Lastrea rigida,* may have escaped observation.§ But it is more probable that the inroads of improvement in agri-



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* "On the hills, from Macclesfield to Buxton, on mossy rocks." Mr. Bradbury, in *Botanist's Guide.*

† *H. Wilsoni* is in Dr. Garner's List of Staffordshire Plants, as occurring at Gradbich, near Flash, within a few miles of Buxton.

§ Chinley Hills, near Chapel-en-le-Frith, are given in the "Botanical Guide," as a locality of *Cryptogramma crispa.* The plant occurs in similar situations in Cheshire and Lancashire. Its English name, "Parsley Fern," correctly describes the appearance of this species.

culture, the enclosure of wilds, and the opening of all accessible places to the feet and greedy bite of the ox and sheep, have exterminated many a native plant, and have limited the number of our rarities. The lover of insects, birds, and ferns, and the lover of landscape also, must cast many a fond regret over scenes once reckoned rife with treasures of natural history; but now modernized into arable or grazing land, and made tributary to the market and rent-day. There are antiquities of Nature's wildness scarcely less deserving protection and preservation, than the antiquities of masonry in ruin; and if the country scenes of our land become destitute of all that is rustic, picturesque, and worthy of scientific research—if every hedgerow that ventures to luxuriate in a rose or honeysuckle, must be trimmed or levelled—if every marshy nook, rank with reed and sedge, and with their shelly and insect peoples, must be submitted to drainage, must be cleared, and be made to pay—then will the tendency of our population, now already too strong, to gather into towns, and to abandon the open parts of the country, include, in self-defence, even those who love the country best; and nature must be studied in books, and museums, or in foreign lands; and our British Floras and Faunas will become historical records of what England once was, before this utilitarian age began. But, if the lover of Ferns has much to fear from the plough, the draining tile, and the axe, he has an equally dark prospect of desolation and annihilation before him, through the rapacity of the modern Traders in Ferns. A bearded dealer in our Northern Fern-treasures visits the Southern counties, to present the bait of a host of captive *Woodsia*, stolen away from every known mountain home, and offered in exchange for the Fern varieties of the lowland! In a few years, what must be the inevitable issue? Even private botanists are found to gather, with no sparing hand; and if our island is still to be counted the habitat of a native Flora, we would earnestly commend *the lovers of plants that are to come after us,* to the consideration of existing collectors. Some eager eye, intent upon a full vasculum, may smile at the thought; but let us be permitted to repeat it — Those who are to follow us, are as worthy of regard as we ourselves were by those who were before us. They who loved and studied Ferns before us, have laboured to discriminate the species, and they have indicated the localities and range of our native species; not that we should destroy, but enjoy, use, and *preserve* them for the time to come. He is practically a transgressor of the great law of love, who cares not, *so much as a Fern,* for posterity. Besides this, it is good to deny oneself the childish pride of a *handful,* when one or two plants will suffice to acquaint us with the normal state, varieties, or marked abnormal developments of a species; and if the vasculum must be filled, upon the plea that duplicates will be desired by friends, let the collector adopt Dr. Greville's excellent rule, to admit no duplicate which is not complete enough for his own herbarium; and then many a specimen will be suffered to live, and abide for years to come, which, otherwise, had been rudely torn away, to swell the spoils of a day's excursion, and to be as rudely cast off to perish, when the day's pleasure was past.

GERARD SMITH.

Copse Hill, Osmaston, June 11, 1861.

SYNOPSIS OF THE GENERA

OF

DERBYSHIRE FERNS.

Order 1. *Capsules with a jointed ring, more or less complete.*

POLYPODIACEÆ.

Tribe 1. *Polypodiaceæ.* Fruit on the back of the fronds.

		Page
1. With a linear involucre, near the midrib	*Blechnum*	11
2. With a linear involucre, marginal	*Pteris*	12
3. With a linear involucre, near the margin	*Cryptogramma*	viii
4. With a linear oblong involucre, opening on the inner side	*Asplenium*	14
5. With a linear oblong involucre, opening centrally	*Scolopendrium*	19
6. With a kidney-shaped involucre	*Athyrium*	1-1A
7. With a nemarginate, or orbicular involucre	*Polystichum*	9-10
8. Sori roundish clusters, scattered. Involucre reniform	*Lastræa*	2
9. With a hood-shaped involucre becoming cup-shaped	*Cystopteris*	13
10. Fruit without an involucre	*Polypodium*	6
11. Fruit mixed with chaffy scales	*Ceterach*	18
Tribe 5. Fruit in a two-lobed cup, marginal	*Hymenophyllum*	viii
Tribe 8. Fruit with traces of a jointed ring, two-valved, terminal to the frond	*Osmunda*	20

(*Order* 2. *Fruit dorsal, without a jointed ring. Marsiliaceæ.*)

Order 3. *Fruit marginal, without a jointed ring.*

OPHIOGLOSSACEÆ.

1. Fruit terminal to the branch, spiked	*Ophioglossum*	21
2. Fruit terminal to the branch, spike-compound	*Botrychium*	22

ATHYRIUM FILIX-FŒMINA, *Roth.*

LADY FERN.

ROOT—Radicles strong and wiry, caudex large and tufted.

FRONDS—Numerous, from one to five feet in length, broadly lanceolate, tapering at the apex, erect, rigid, bipinnate; the three lower pairs of pinnæ droop, the lowermost pair forming acute angles with the rachis.

STIPES—About one-fifth the length of the frond, often of a reddish purple colour, and clothed with a few dark, pointed, membraneous scales at the base.

RACHIS—Smooth.

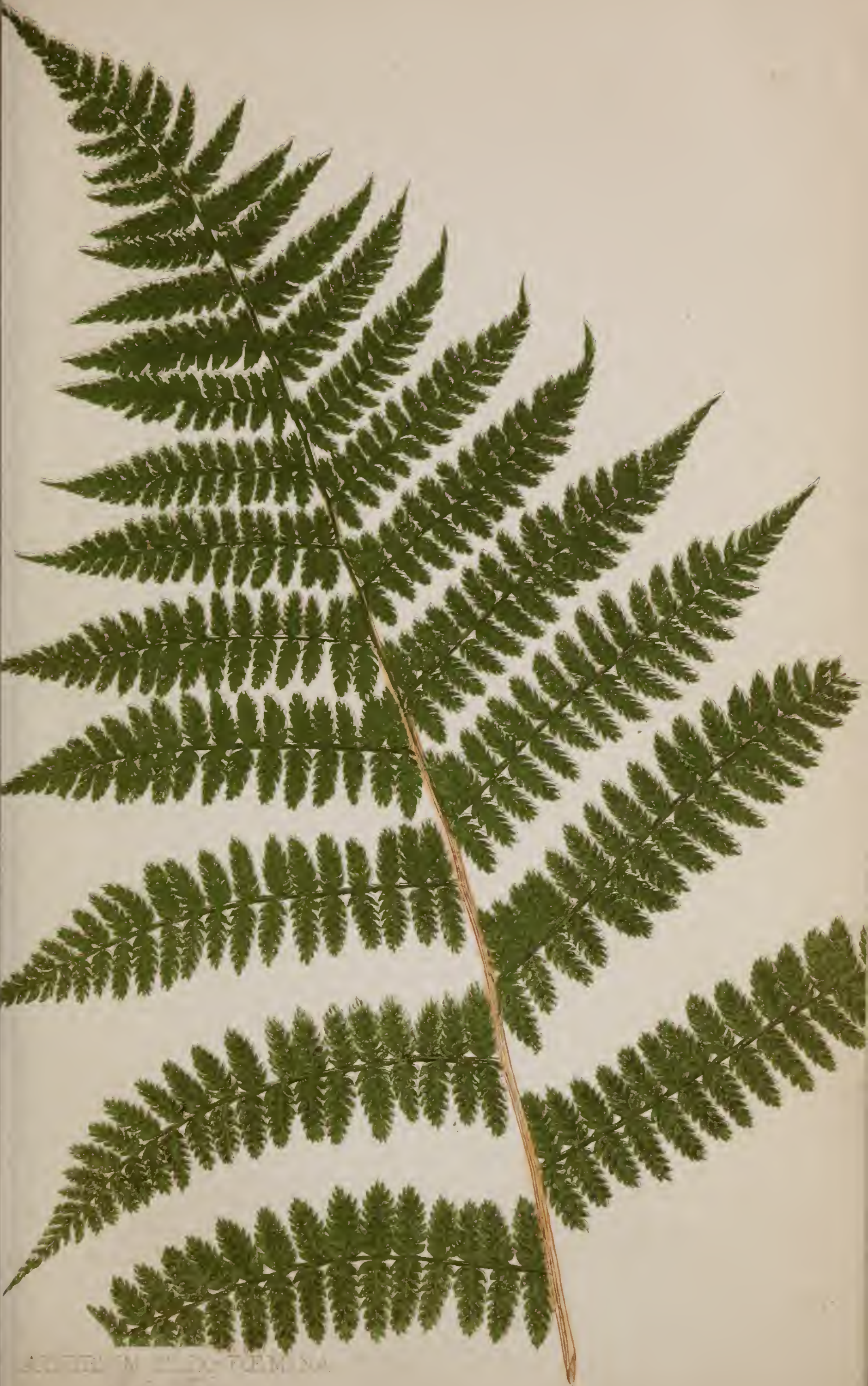
PINNÆ—Alternate, lanceolate, pinnate; the pair of pinnules nearest the main rachis being generally longer than the next two pairs; apex long and acute.

PINNULES—Distant, narrow, linear, pinnatifid; the lowest lobe in each pinnule on the side furthest from the main rachis is proportionately longer than the others; each lobe dentate.

VENATION—Lateral veins, alternate and forked, each branch of the fork ending in the point of a lobe, the lower lobe furthest from the main rachis having a fork of five branches.

FRUCTIFICATION—Kidney shaped, clusters of capsules on the forks of the pinnules.

HABITAT—Moist shady places, bushy bogs and hedges.



ASPLENIUM FILIX-FŒMINA.

Lady Fern.

ATHYRIUM F. FŒMINA.

Var: IRRIGUUM, *Smith.*

CONVEXUM, *Newman.*

BROOK SHIELD FERN.

ROOT — Radicles strong and wiry. Caudex large and tufted.

FRONDS — Numerous, of a pale yellow green; smaller than the common form of *A. F. Fœmina,* linear-lanceolate, erect, rigid. Bipinnate or sub-bipinnate.

STIPES — Short, slightly clothed with acute membranous scales.

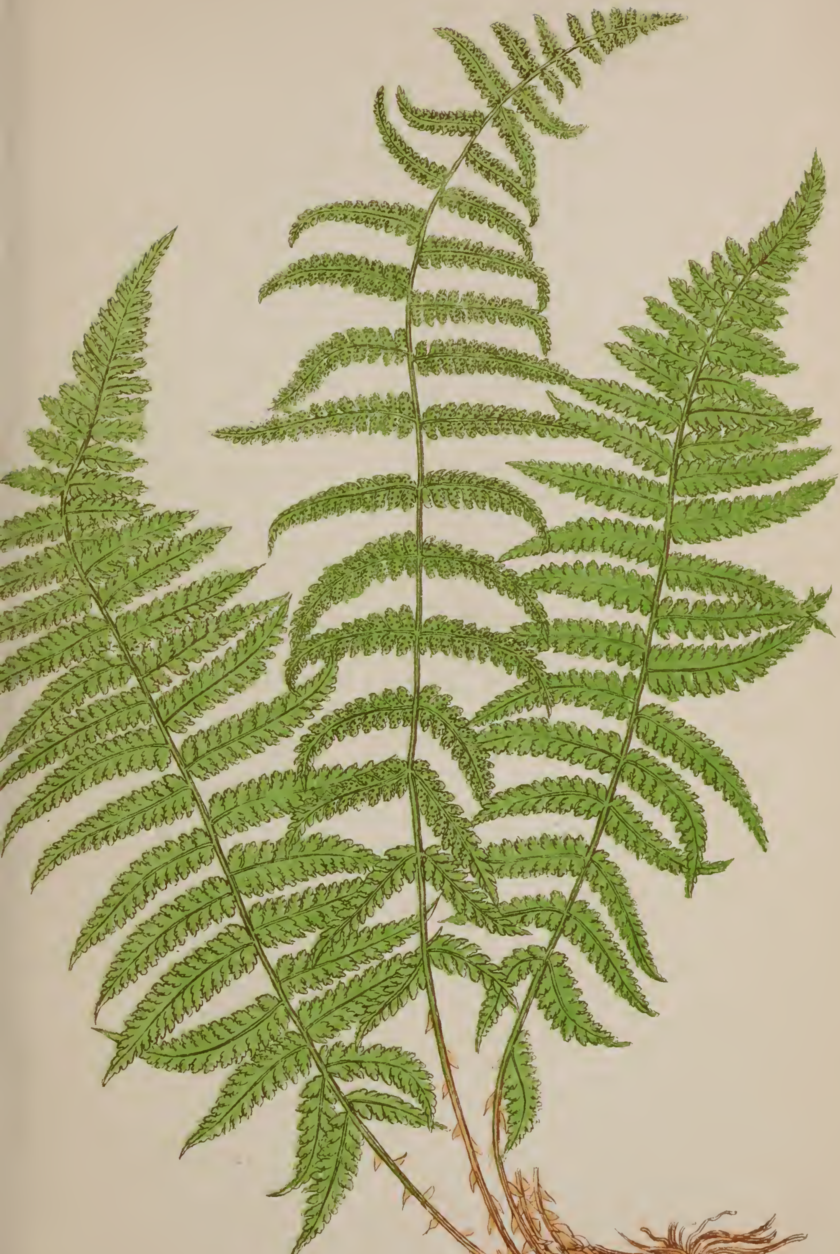
PINNÆ — Nearly opposite, mostly pinnate, linear.

PINNULES — Narrow, linear, crenate, serrate, curved inwards upon the fruit.

FRUCTIFICATION — Similar to the normal form, abundant.

HABITAT — Boggy places, by springs. Near Ashbourne, &c.

I. A



ATHYRIUM F. FŒMINA

Var. Irriguum.

Lastrea Filix-Mas, *Moore.*

Dryopteris Filix-mas, *Newman.*

MALE FERN.

Root — Radicles strong and wiry, and of a dark brown colour; caudex stout and tufted.

Frond — Oblong lanceolate, pinnate; the pinnæ gradually narrowing from the fourth or fifth pair, as they near the base; length from one foot to four feet.

Stipes — Short, and more or less thickly covered with auburn scales, which are continued the whole length of the rachis.

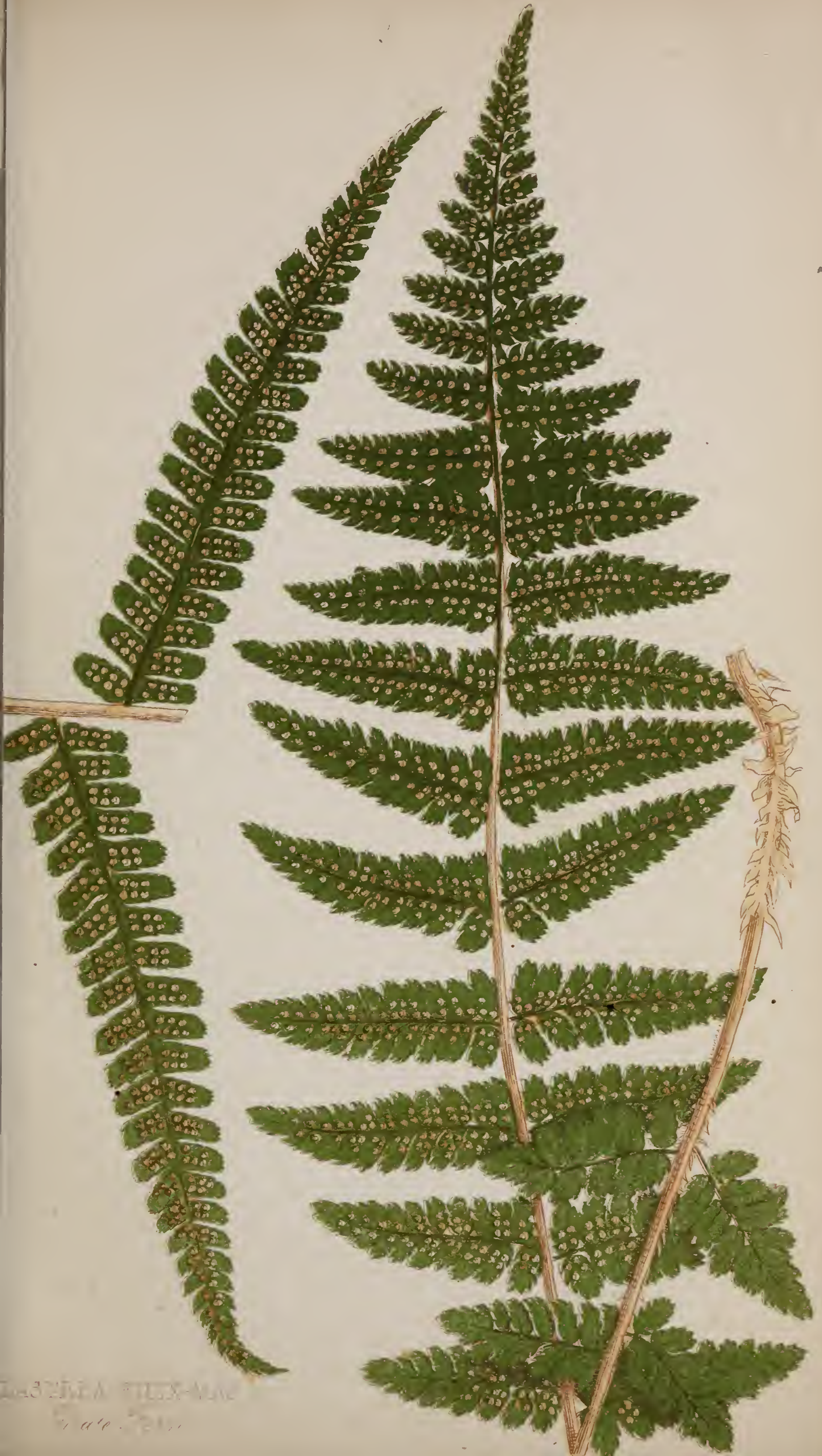
Pinnæ — Numerous, alternate, nearly linear, pinnate, acute at the apex.

Pinnules — Pinnules somewhat obtuse, dentate at the extremities, serrate at the margin.

Venation — Lateral veins forked half-way between the midvein and the margin, to which they do not quite extend.

Fructification — Clusters of capsules in pairs near the base of the pinnules, more thickly set on the middle and upper portions of the frond: the six or seven lowermost pinnæ often being barren. Involucre roundish kidney-shaped.

Habitat — Common in dry shady places.



LASTREA FILIX-MAS

Plate [illegible]

LASTREA DILATATA, *Presl.*

LOPHODIUM MULTIFLORUM, *Newman.*

ROTH'S FERN.

ROOT — Black and wiry, caudex large and tufted.

FROND — Ovato-lanceolate, bipinnate; from two to four feet in length. When among rocks under shade, the frond often becomes contracted, and the pinnæ convex and more firm in substance.

STIPES — About one-third the length of the frond, thickly covered with large brown scales, the centre of which has a keel-shaped thickening, consisting of enlarged cells.

PINNÆ — Nearly opposite, linear; the lower pinnæ are nearly triangular, pinnate.

PINNULES — Pinnatifid, the inferior (or lower) ones are longer than the superior (or upper) ones, the lower pinnules have distinctly stalked and serrated lobes; all the lobes are serrated, and terminate with a soft spine; the four or five middle pinnæ in large specimens have the first lobe of the inferior pinnule shorter, broader, and more serrated than the rest.

VENATION — Lateral veins, between the division of each pinnule, forked.

FRUCTIFICATION — Capsules, with a fringed involucre, on the anterior branch of the lateral veins.

HABITAT — Grows freely on woody slopes, chiefly on a sandy soil.

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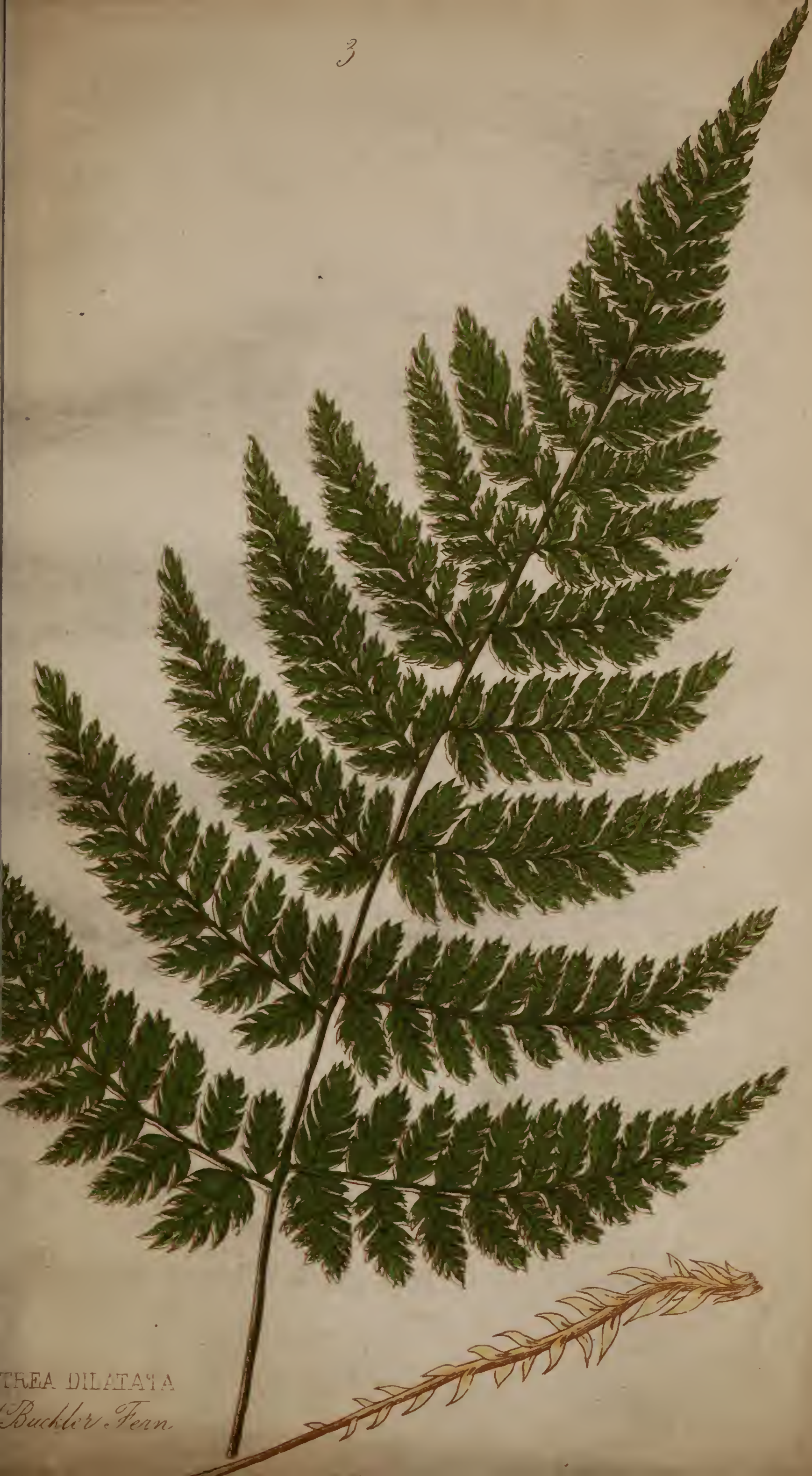

TREA DILATATA

Buckler Fern

LASTREA SPINULOSA, *Moore.*
ASPHIDIUM SPINULOSUM, *Smith.*
LOPHODIUM SPINOSUM, *Newman.*

WITHERING'S FERN.

ROOT — Radicles black and wiry, caudex stout.

FROND — Narrow, linear-lanceolate, pinnate; from one to two feet in length.

STIPES — Nearly as long as the frond, slender and fragile, slightly covered with pale thin membraneous scales, composed of cells of one size and substance.

PINNÆ — Pinnate, nearly opposite, angular-lanceolate; the inferior pinnules in the basal pinnæ being much longer than the superior, and especially so in the first pair of inferior pinnules.

PINNULES — Detached, in the first six pairs of pinnæ the lower pinnules are longer than the upper ones; the lobes are dentate, and the serratures terminate in soft spines, the spinous serrature curving towards the apex of the pinnule.

VENATION — "The veins of the pinnules, which in adult specimens are sunken on the upper side of the frond, are alternately branched, each system of branches entering a division of the pinnule, and the anterior branch bearing a circular cluster of capsules just within the sinus, which occurs between each two divisions." . . . "Owing to the constant position of the clusters on each pinnule, they form a regular double line, the midvein of the pinnule passing up the centre."— *Newman*, p. 161, *Third Edition.*

FRUCTIFICATION — The clusters are generally confined to the upper portion of the frond. Involucre with a wavy margin.

HABITAT — Damp moist woods and boggy places, near Matlock and Ashbourne.

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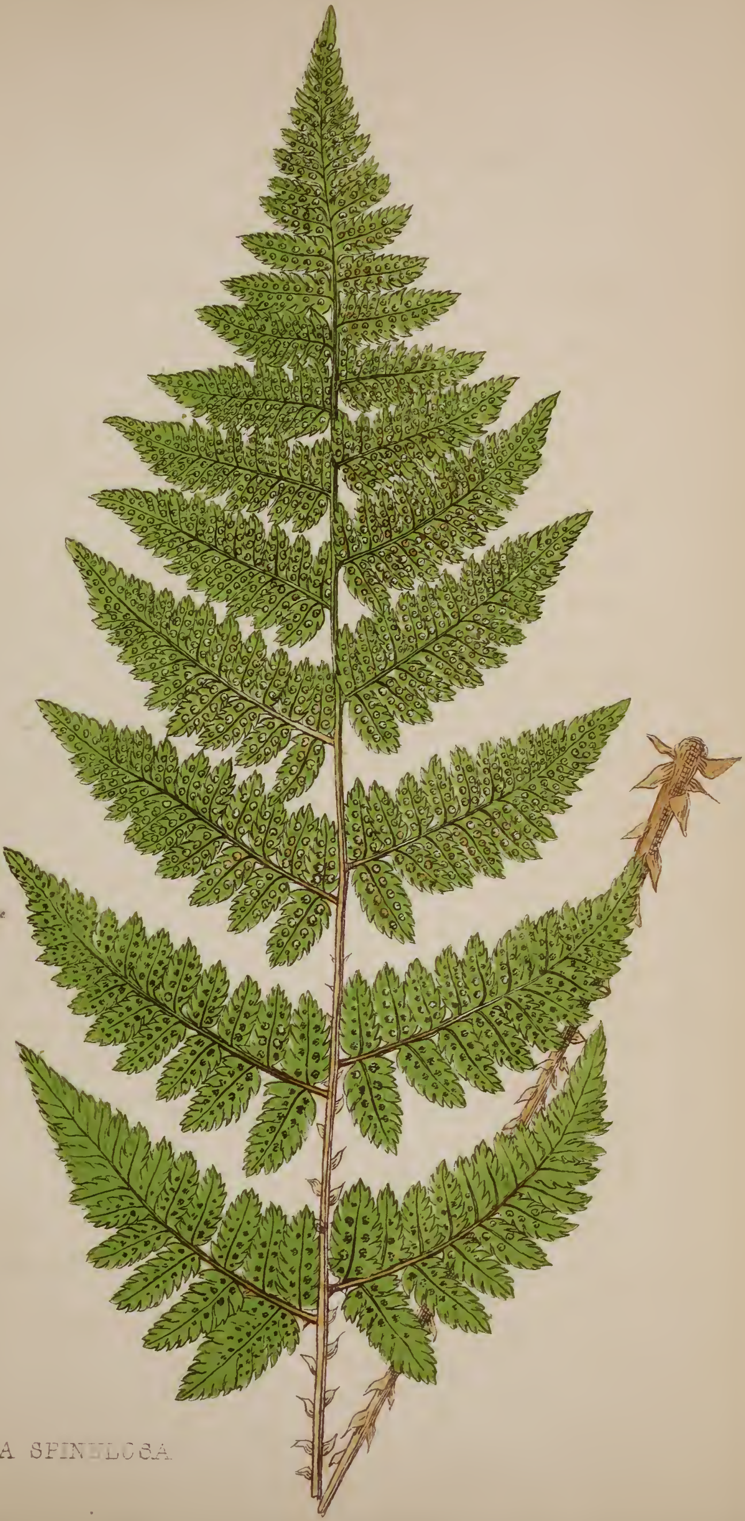


LASTREA SPINULOSA

LASTREA OREOPTERIS, *Presl.*

LASTREA MONTANA, *Newman.*

MOUNTAIN FERN.

ROOT — Radicles strong, tough, and penetrating; caudex thick, tufted, and scaly.

FROND — Elongate-lanceolate pinnate; the seven lower pairs of pinnæ becoming gradually more narrow, the lowermost even in full-grown specimens being little more than half an inch long; fronds from one to three feet in length.

STIPES — Short (about one-seventh the length of the frond), moderately covered with light brown scales.

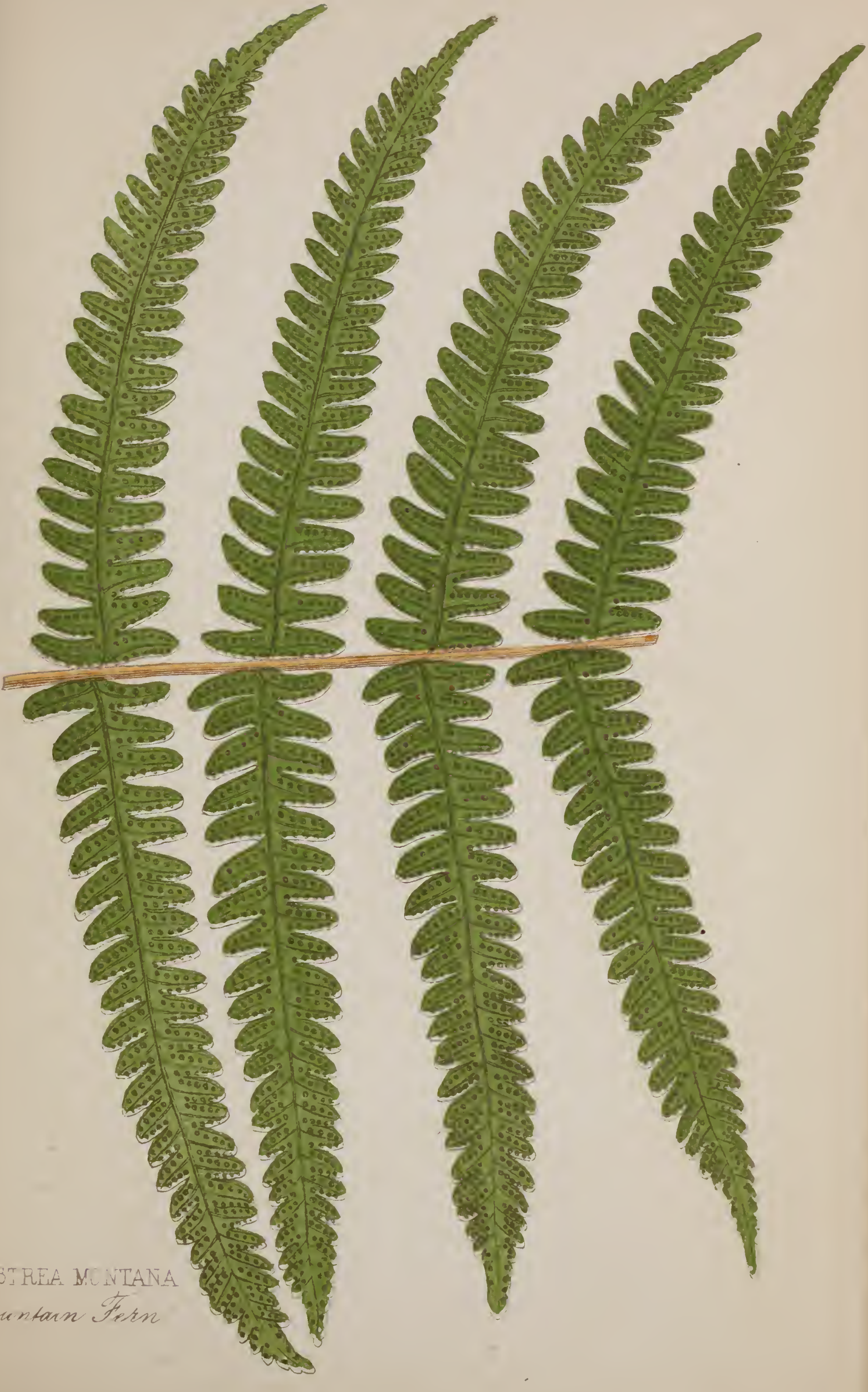
PINNÆ — Linear-lanceolate, deeply pinnatifid, opposite, acute at the apex.

PINNULES — Pinnules rounded, and slightly crenate.

VENATION — Lateral veins alternate; the midvein terminates with a fork; the two veins next the extremity are simple, the remainder are forked.

FRUCTIFICATION — Clusters of capsules circular, near the extremity of each branched or simple fork, giving to the pinnule the appearance of a marginal braiding.

HABITAT — In mountainous districts, generally in moist situations. Plentiful in the High Peak; found also on the sandstone formation in the neighbourhood of Matlock and Ashbourne.



LASTREA MONTANA

Mountain Fern

POLYPODIUM VULGARE, *Linnæus.*

COMMON POLYPODY.

ROOT — Radicles dark brown, long and fibrous; rhizome long and creeping, covered with a scaly cuticle.

FROND — Linear-lanceolate, deeply pinnatifid.

STIPES — About one-third the length of the frond, articulated at the base.

PINNÆ — Linear, alternate, serrated more or less deeply at the margin, rounded at the apex.

VENATION — Midvein sinuous, lateral veins alternate, three or four times branched.

FRUCTIFICATION — Circular clusters of capsules on each side the midvein, capsules generally on the upper part of the frond only.

HABITAT — On old trees, hedges, walls, roofs, and ledges of rocks, common.

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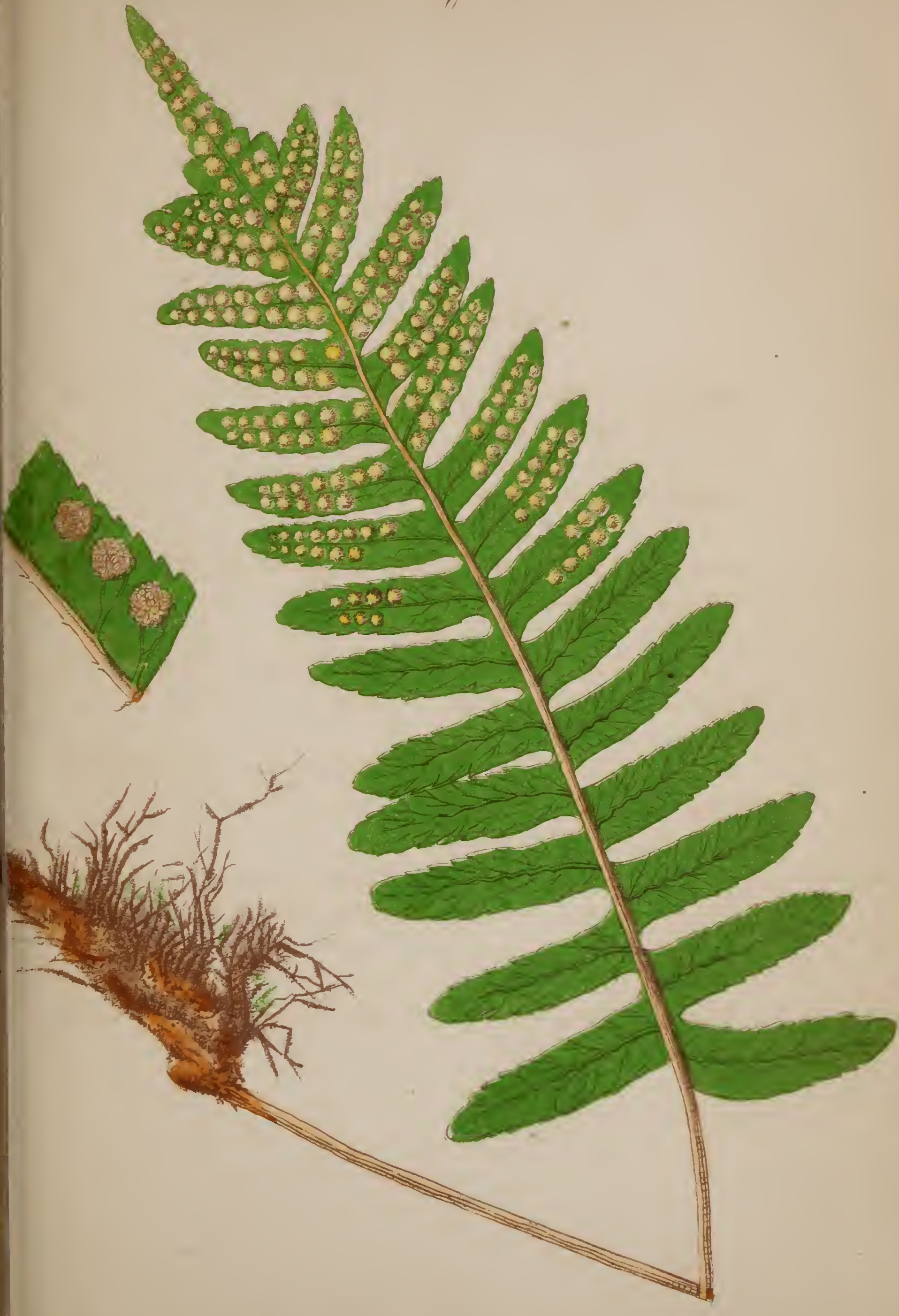


POLYPODIUM VULGARE

Common Polypody

POLYPODIUM DRYOPTERIS, *Linnæus.*

GYMNOCARPIUM DRYOPTERIS, *Newman.*

OAK FERN.

ROOT — Radicles black and wiry; rhizome black, long, and creeping; much thinner than in the *Polypodium vulgare.*

FROND — Nearly triangular, three-branched; each branch is pinnate, the pinnæ are opposite.

STIPES — Twice the length of the frond, very slender, and smooth to the touch (especially when compared with the *P. Calcareum*); there are a few straggling scales at the base.

PINNÆ — Opposite, pinnate at the base, and pinnatifid towards the end; apex sub-acute.

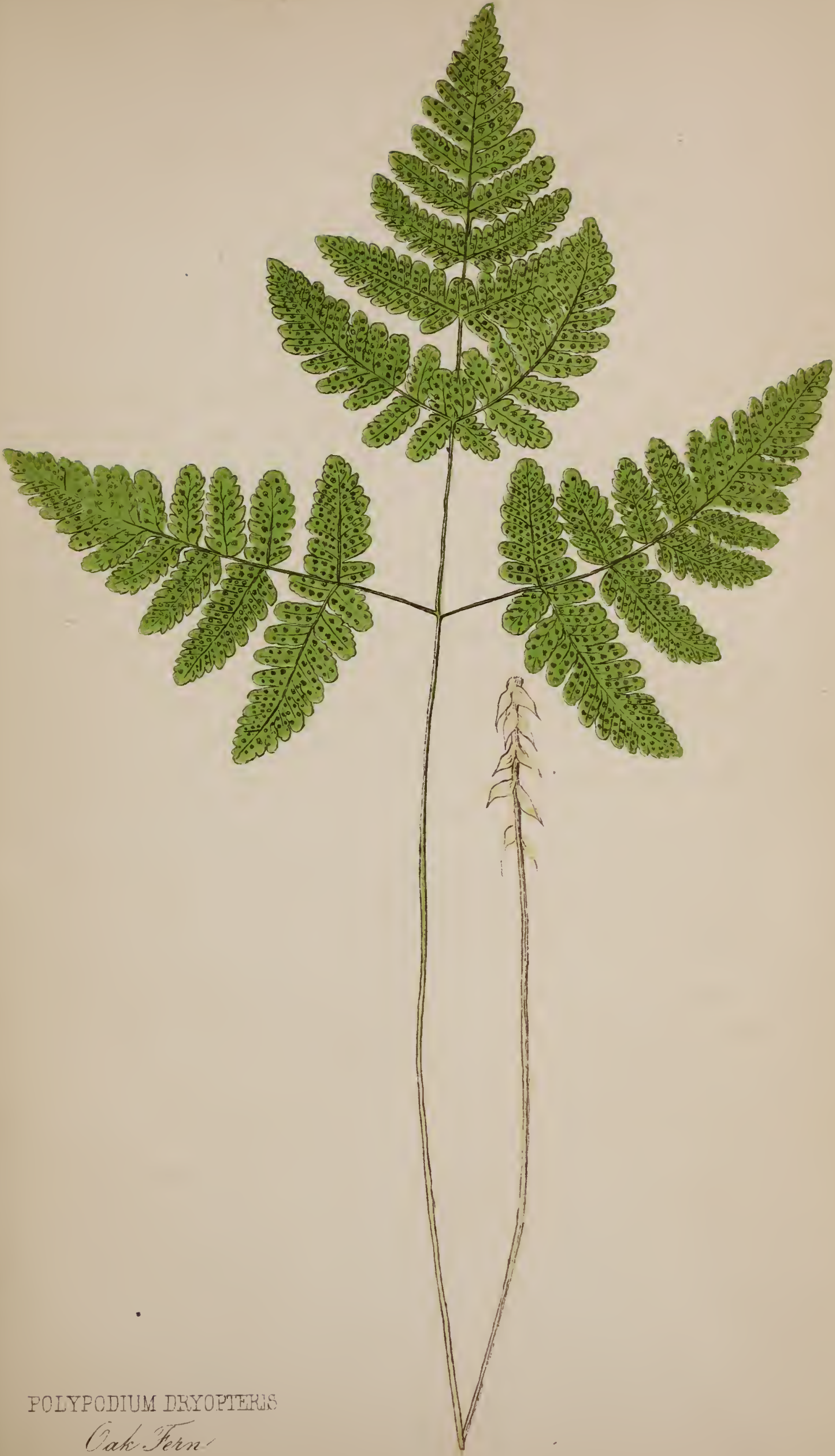
PINNULES — Oblong, somewhat serrated, round at the apex; the basal pinnules are sessile.

VENATION — Midvein sinuous; lateral veins, both simple and forked, extending to the margin.

FRUCTIFICATION — Clusters of capsules marginal.

HABITAT — In moist, shady places. Found near Rowsley, Ashover, &c., on sandstone.

7



POLYPODIUM DRYOPTERIS

Oak Fern

POLYPODIUM CALCAREUM, *J. E. Smith.*

GYMNOCARPIUM ROBERTIANUM, *Newman.*

RIGID THREE-BRANCHED POLYPODY.

ROOT — Fibrous and black; rhizome black and creeping, from which the fronds spring at intervals.

FROND — Subternate, rhomboid-triangular (the base, or outline below the broadest diameter, being in the majority of Matlock specimens a little longer than the sides; one measuring 22 inches, is at the base of the frond 11½ inches wide, while the sides are only 9½ inches deep), three-branched: basal branches, lower half pinnate, upper half pinnatifid; the upper branch pinnate, apices acute.

STIPES — About two-thirds the length of the frond, much firmer and stronger than in *P. Dryopteris,* sparingly covered with scales.

PINNÆ — Triangular-lanceolate, pinnatifid, the lower pinnæ and pinnules being longer than the upper.

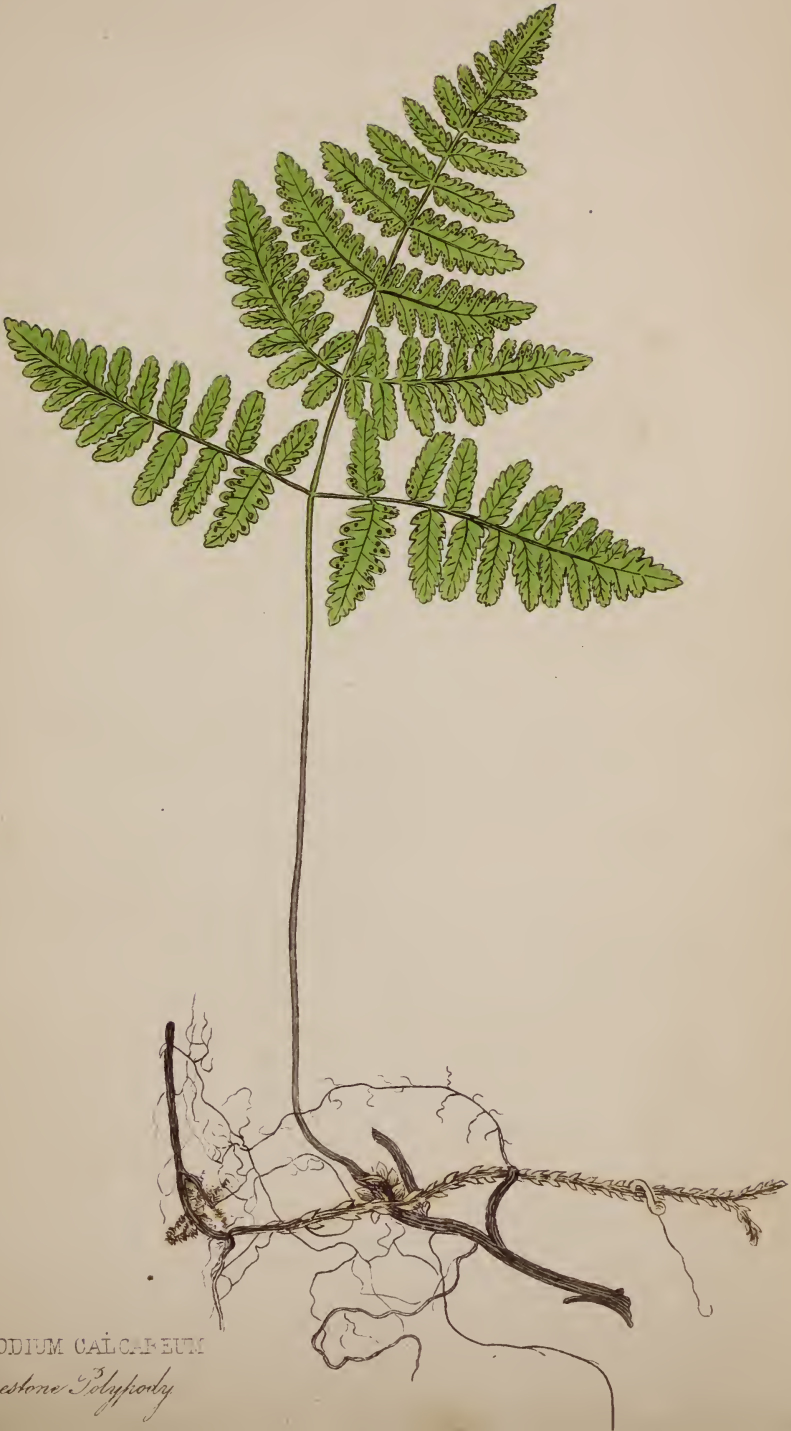
PINNULES — Oblong, obtuse, somewhat serrated.

VENATION — Midvein sinuous, lateral veins simple and branched.

FRUCTIFICATION — Circular clusters of capsules, marginal when in perfection.

HABITAT — Rocky places, in limestone districts, upon deep loose stones: thrives in sunshine. Locally abundant about Matlock, Buxton, Miller's Dale, &c.

8.



POLYPODIUM CALCAREUM

Limestone Polypody

POLYSTICHUM ANGULARE, *Newman.*
ASPIDIUM ANGULARE, *Smith.*

WILDENOW'S FERN.

ROOT — Radicles long, wiry, and penetrating; caudex stout and tufted, profusely covered with brown scales.

FROND — Drooping, lanceolate, bipinnate: curved as a feather.

STIPES — Short, about one-fourth the length of the frond, thick at the base, densely covered with reddish scales; the scales are continued the whole length of the frond, both on the main and secondary rachis.

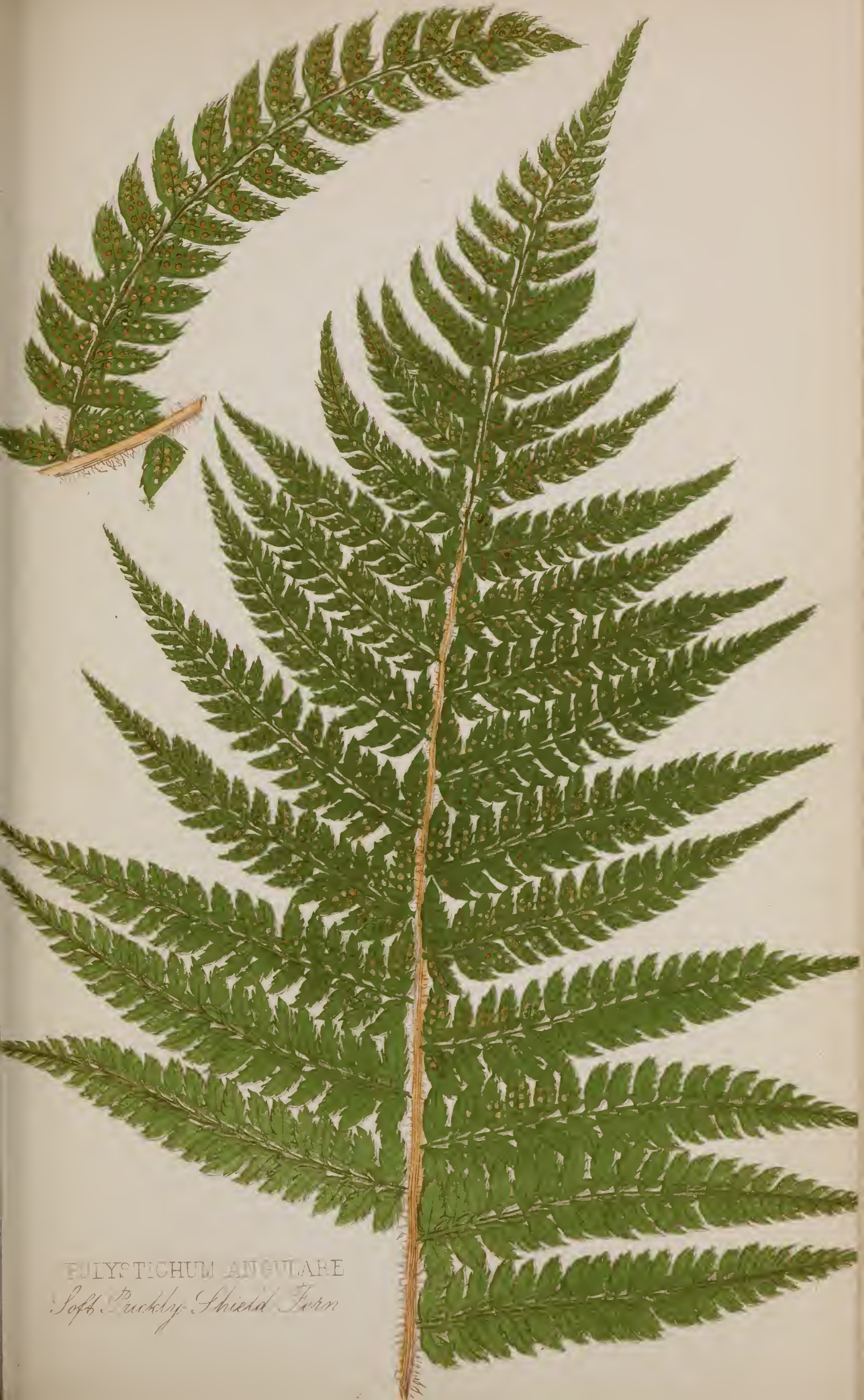
PINNÆ — Alternate, linear, distant, lanceolate, pinnate; curving upwards at the apex.

PINNULES — Stalked, ovate-lanceolate, forming an obtuse angle with the stalk, margin serrated, each serrature terminating in a spine; the upper basal lobes are auricled, sometimes so deeply as to make the pinnule pinnate.

VENATION — Midvein sinuous, lateral veins alternate, forked, terminating at the point of the serratures.

FRUCTIFICATION — Clusters with a jagged involucre, the capsules of a beautiful red color when in perfection.

HABITAT — Frequent in woods and hedges.



POLYSTICHUM ANGULARE

Soft Prickly Shield Fern

POLYSTICHUM ACULEATUM, *Roth.*

ASPIDIUM ACULEATUM AND LOBATUM, *Smith.*

PRICKLY FERN.

ROOT — Radicles long and wiry, caudex large and tufted.

FROND — Erect, narrow, lanceolate, bipinnate; of a darker green than *P. angulare.*

STIPES — Short, thickly clothed with large chaffy scales.

PINNÆ — Pinnate, lanceolate, alternate.

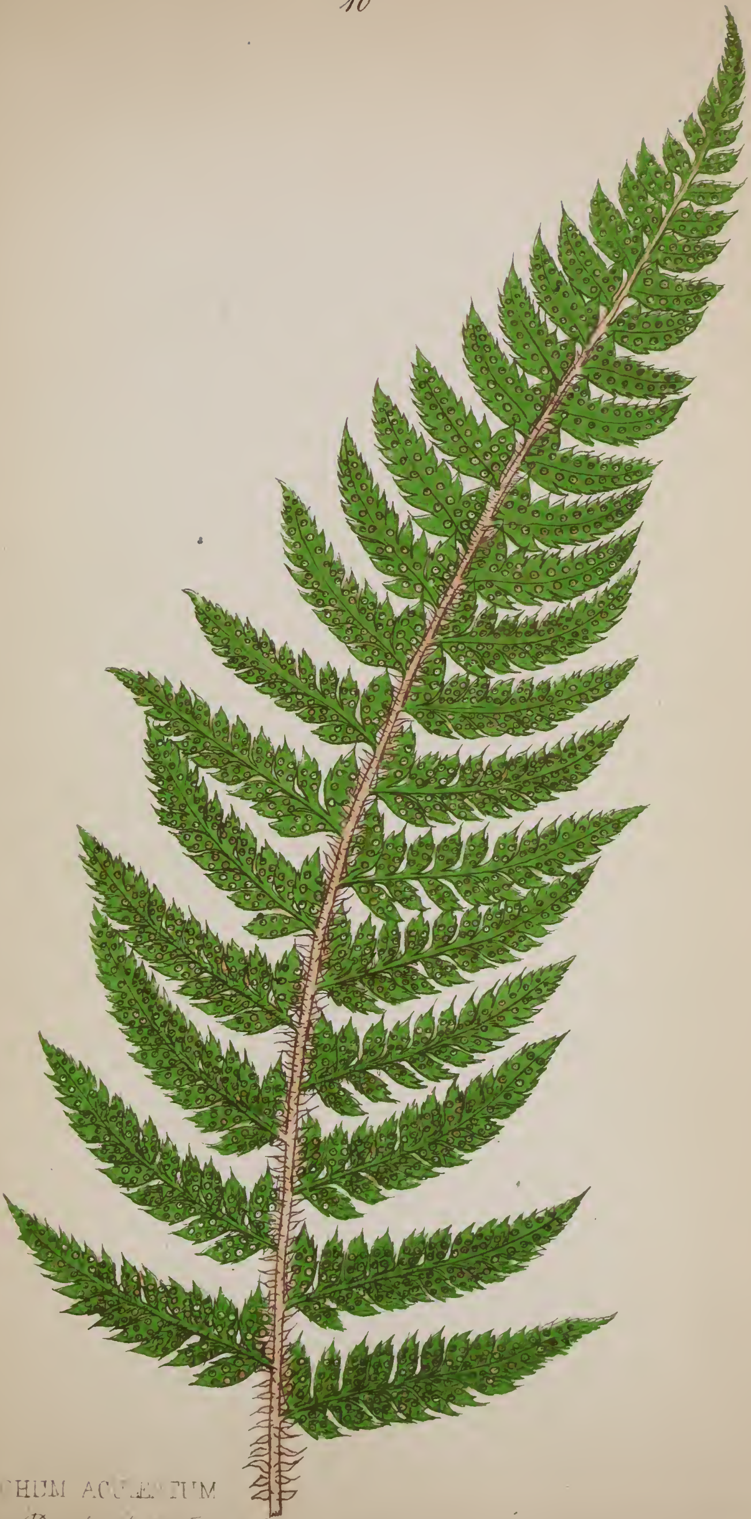
PINNULES — Ovate-lanceolate, spinous at the apex, margin acute; the superior basal pinnule larger than the rest, and auricled; all at an acute angle with the common stalk.

VENATION — Lateral veins alternate, forked, terminating in the serratures.

FRUCTIFICATION — Clusters of capsules upon the anterior branch of the vein.

HABITAT — Common in woods and lanes.

10



OLYSTICHUM ACULEATUM

Common Prickly Shield Fern

BLECHNUM SPICANT, *Moore & Newman.*
BLECHNUM BOREALE, *Swartz.*

NORTHERN HARD FERN.

ROOT — Radicles long, tough, and numerous; caudex thick and tufted.

FROND — In two forms, barren and fertile. Fertile fronds: numerous, erect, linear-lanceolate, pinnate, acute at the apex; the lower pinnæ reaching nearly to the caudex. Barren fronds: pendant, lanceolate, deeply pinnatifid.

STIPES — Short, dark brown or purple, smooth.

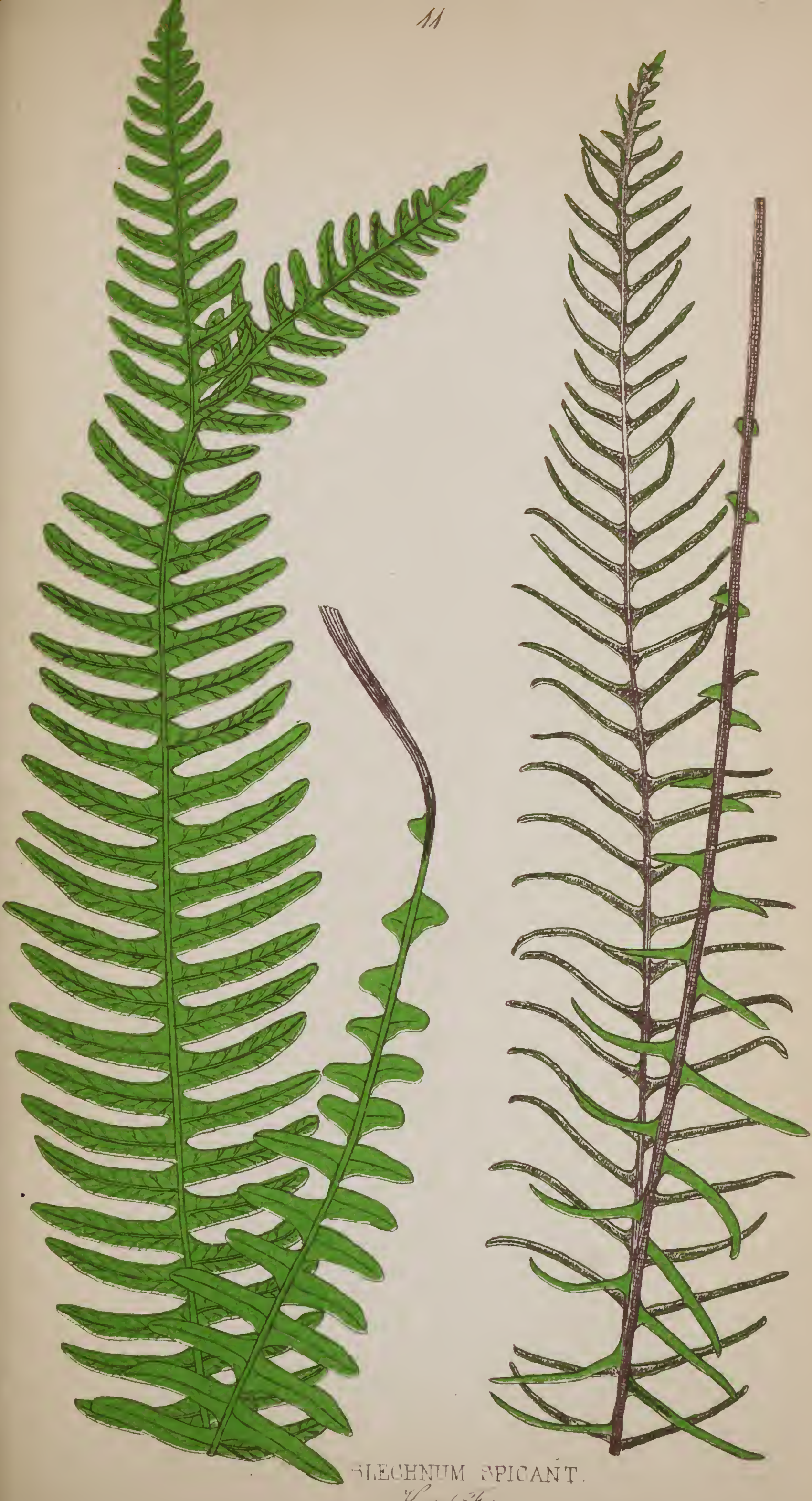
PINNÆ — Fertile: linear-lanceolate, pointed at the apex. Barren: lanceolate, pointed at the apex; alternate, very narrow towards the base.

VENATION — Barren frond: bifurcate, lateral veins not extending to the margin. Fertile frond: the same as the barren, with the addition of veins running parallel with and on each side of the midvein, crossing the forked veins near the base of the fork.

FRUCTIFICATION — Capsules attached to the veins which run parallel with the midvein, at first covered with a linear membranous involucre; after the bursting of which the spores become of a dark brown color, completely covering the pinnæ. A frond gathered near Matlock has the lower half barren and the upper fertile. The rachis of the barren portion of the frond is of a light brown, and of the fertile portion dark purple.

HABITAT — Common on the sandstone, in woods and damp places, and on moorlands. In very wet shaded spots, the fronds are found all fertile.

11



BLECHNUM SPICANT.

Hard Fern.

PTERIS AQUILINA, *Linn.*

EUPTERIS AQUILINA, *Newman.*

COMMON BRAKES.

ROOT — Radicles brown and fibrous; rhizome thick, long, and creeping, succulent, and of a dark brown color.

FROND — Triangular, bipinnate, from one to ten feet high, according to locality.

STIPES — Erect and strong, half the length of the frond, pilose.

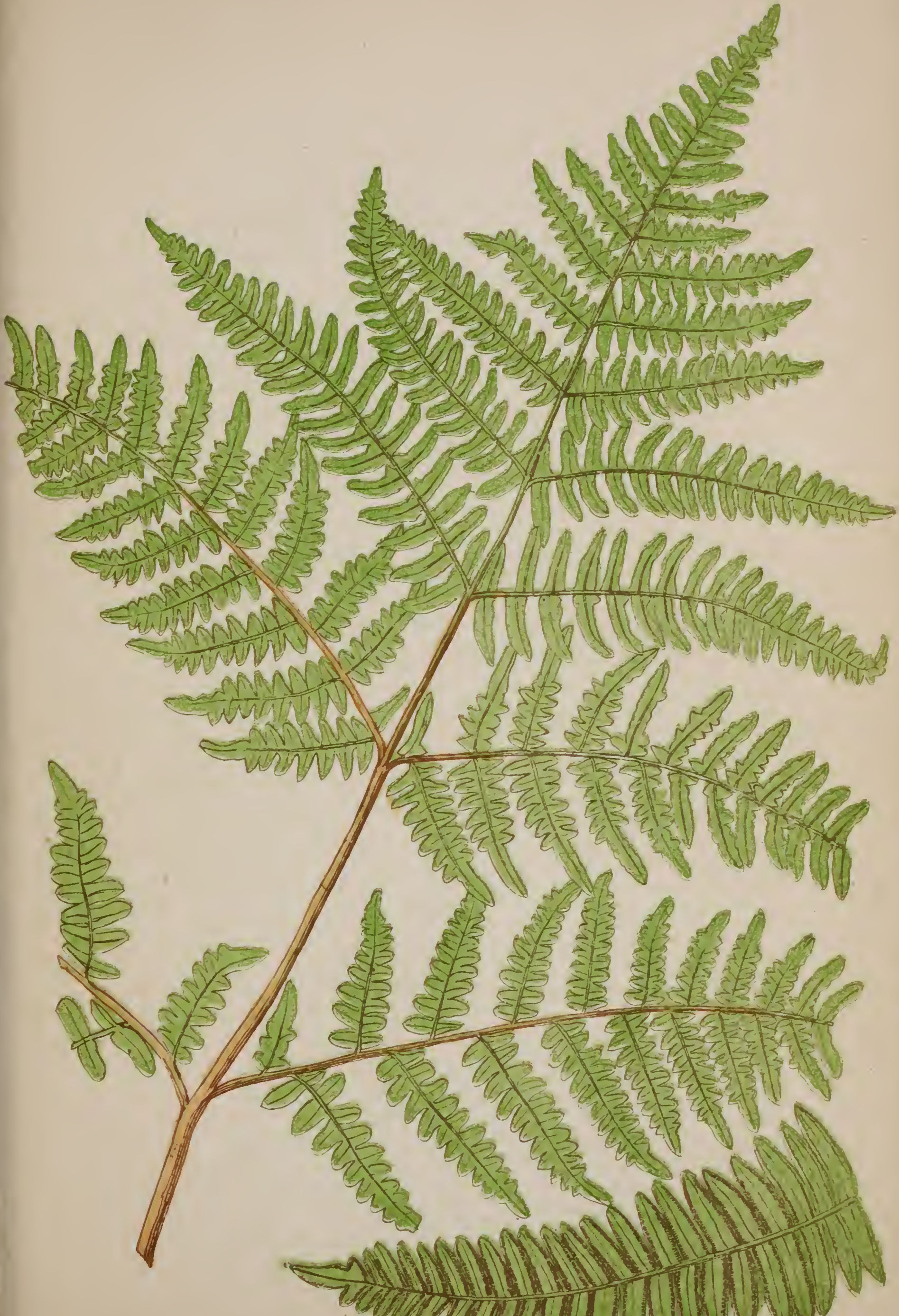
PINNÆ — Pinnate, acute at the apex.

PINNULES — Pinnatifid, lobes rounded.

VENATION — Lateral veins alternate, twice forked, extending to the margin, joined to a longitudinal vein running along the margin: this marginal vein forms the receptacle for the indusium.

FRUCTIFICATION — The thecæ numerous, globose, and encircled with a beaded elastic ring. The sporules numerous, angular, ovate.

HABITAT — Common.



PTERIS AQUILINA

Common Brake

CISTOPTERIS FRAGILIS, *Bernhardt.*

BRITTLE BLADDER FERN.

ROOT — Black and wiry, caudex small and somewhat flat.

FROND — Lanceolate, bipinnate, from four to sixteen inches long.

STIPES — One-third the length of the frond, varying with the situation of the plant.

PINNÆ — Lanceolate, alternate, pinnate; the lower pair deflexed, and shorter than the upper pinnæ.

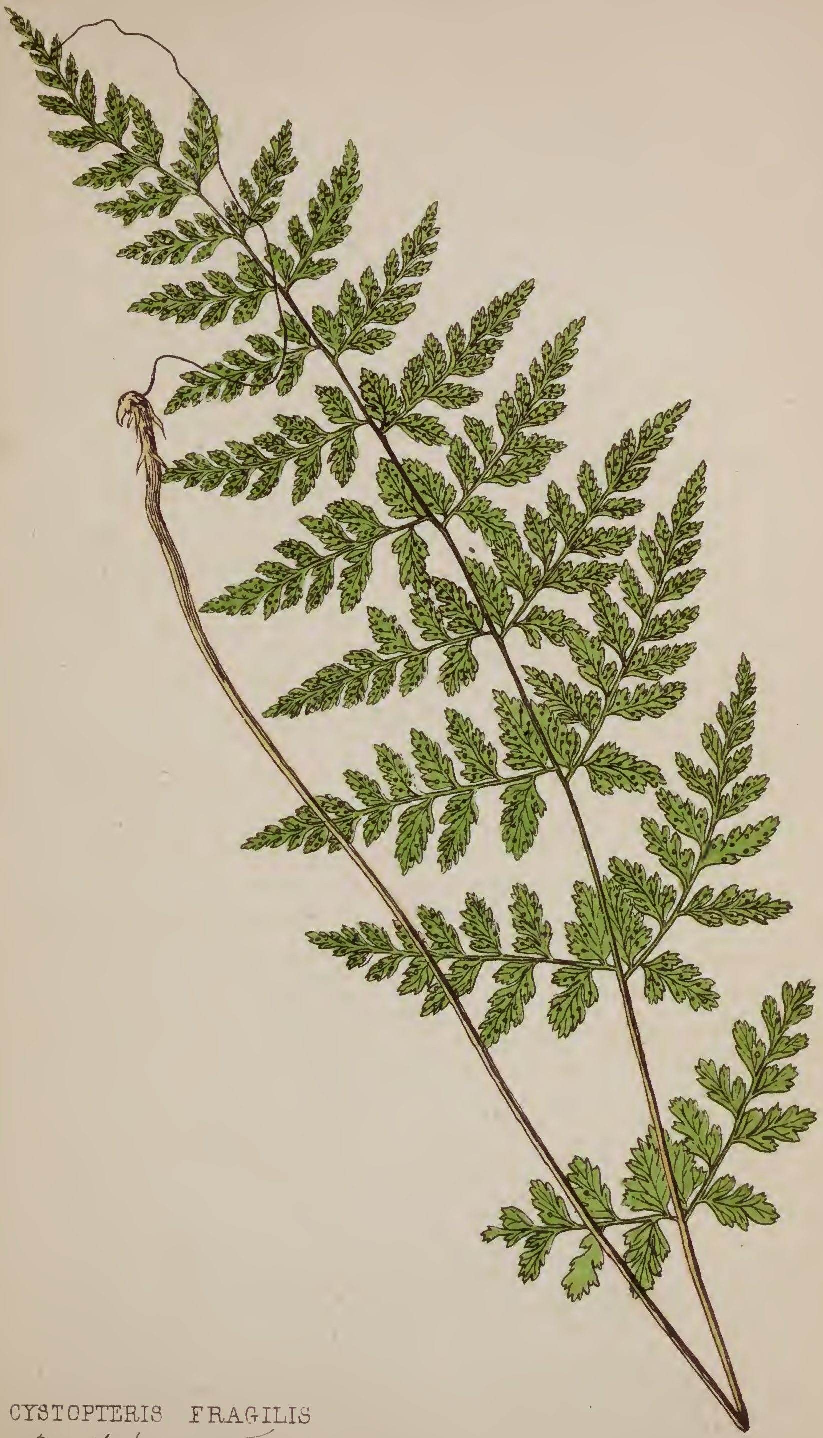
PINNULES — Oblong-lanceolate, deeply pinnatifid, serrated.

VENATION — Midvein sinuous, lateral veins branched.

FRUCTIFICATION — Clusters of capsules near the extremity of each vein, upon a membranous envelope.

HABITAT — Clefts of stone, in walls and mines; attaining the greatest perfection in wide fissures of rocks.

LOCALITY — Plentiful about Matlock, Buxton, and in all the limestone districts: occasionally on sandstone.



CYSTOPTERIS FRAGILIS

Brittle Bladder Fern

ASPLENIUM ADIANTUM-NIGRUM, *Linn.*

BLACK SPLEENWORT.

ROOT — Radicles long, black, and wiry; caudex tufted.

FROND — Elongate-deltoid, bipinnate.

STIPES — As long as the frond, of a dark purple hue.

PINNÆ — Triangular, alternate, pinnate; apex acute.

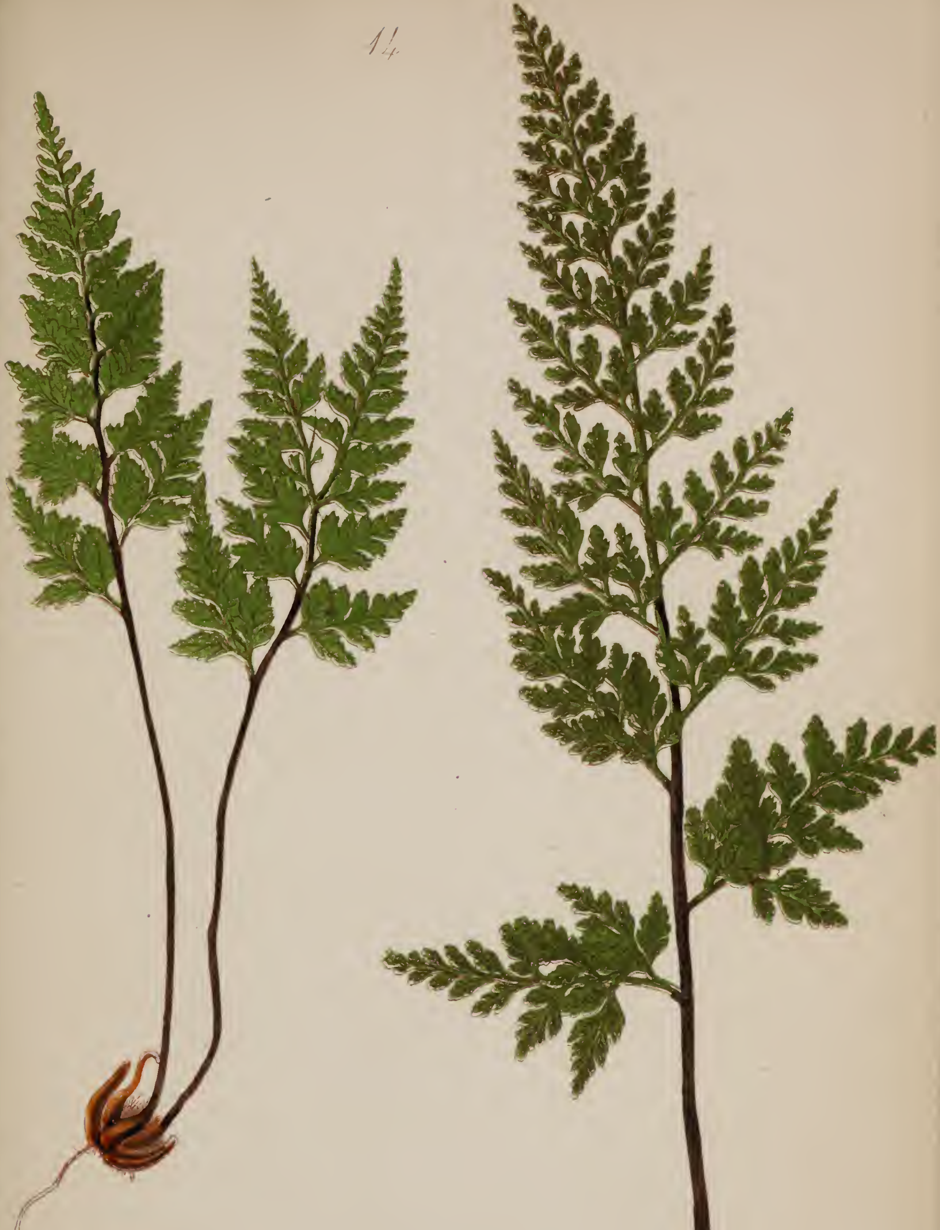
PINNULES — Triangular, pinnatifid, bluntly or sharply serrated; those in the lower pinnæ sometimes pinnate.

VENATION — Lateral veins alternate, branched.

FRUCTIFICATION — Lines of capsules on the forked veins, which, after the bursting of the involucre, become confluent.

HABITAT — In fissures of rocks and on walls, and on well-drained rocky slopes and banks.

LOCALITY — Plentiful about Matlock, Buxton, and other places.



ASPLENIUM ADIANTUM NIGRUM

Black Spleenwort

ASPLENIUM TRICHOMANES, *Linn.*

COMMON MAIDENHAIR SPLEENWORT.

ROOT — Radicles long, black, strong and wiry; caudex tufted.

FROND — Narrow, linear-elongate, pinnate.

STIPES — Dark purple, about one-third as long as the frond.

PINNÆ — In pairs, distant, ovate, obtuse at the apex, crenate.

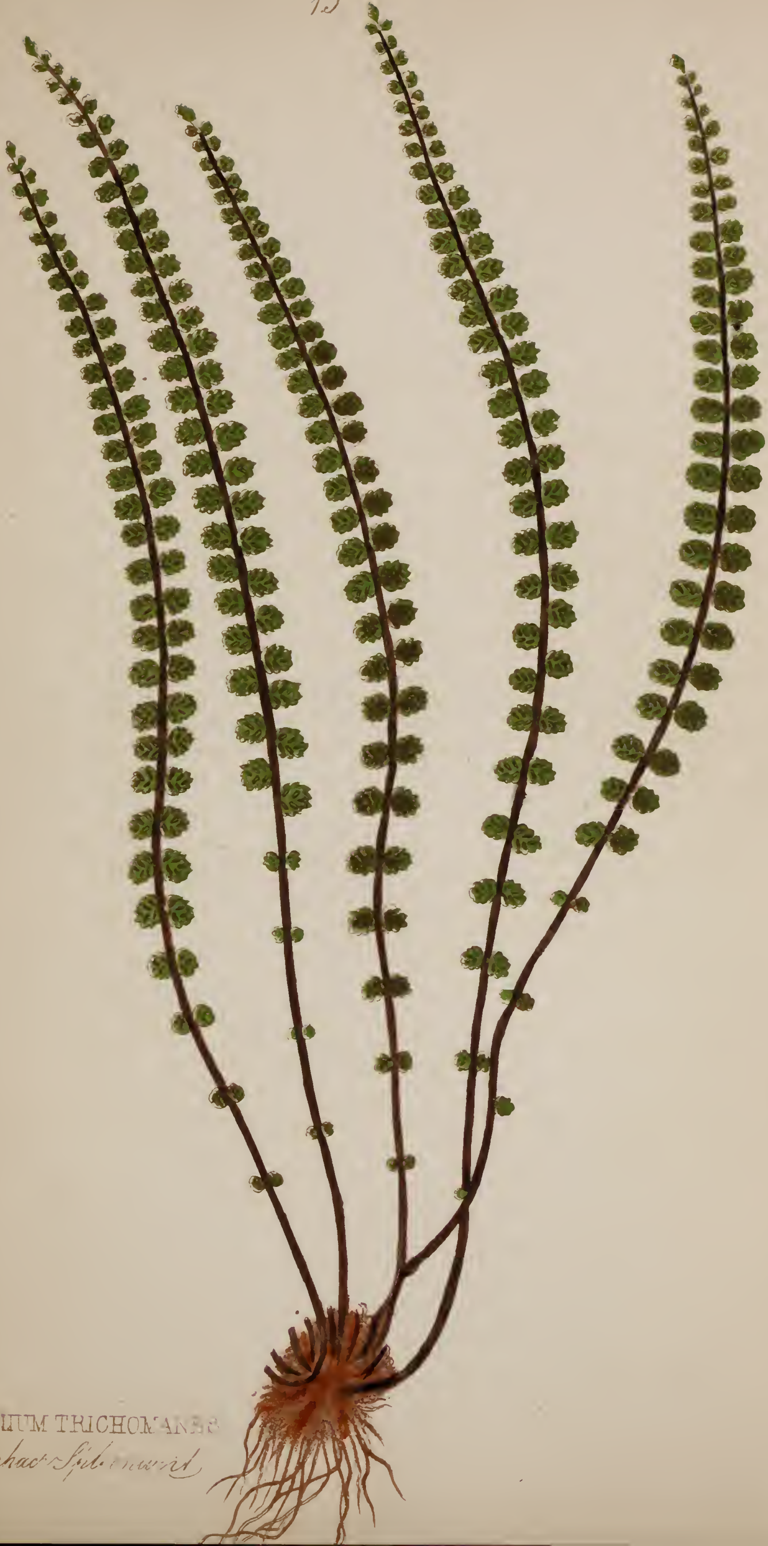
VENATION — Lateral veins forked, midvein sinuous.

FRUCTIFICATION — Upon the anterior branch of the forked lateral vein, involucre linear.

HABITAT — Fissures of rocks, walls, and old buildings.

LOCALITY — Common in many parts of Derbyshire, chiefly on limestone.

15



ASPLENIUM TRICHOMANES

Maidenhair Spleenwort

ASPLENIUM VIRIDE, *Hudson.*

GREEN SPLEENWORT.

ROOTS — Long, black and fibrous; caudex dark and tufted.

FROND — Narrow, linear, elongated, pinnate, of a paler and more yellow-green and more delicate than *A. Trichomanes.* Rachis smooth, of a bright green colour.

STIPES — Dark at the base, becoming paler near the rachis.

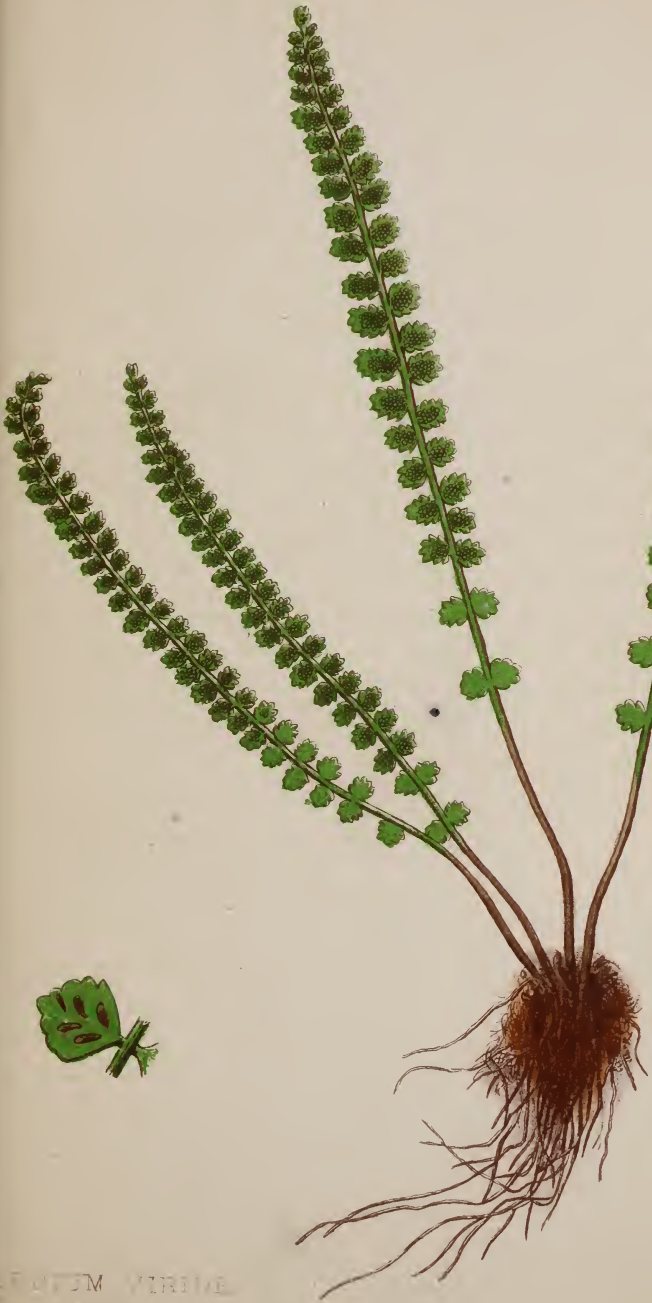
PINNÆ — Alternate, or in pairs, distant, shape irregular but often quadrate, margin more or less crenate.

VENATION — Lateral veins both simple and branched, not usually extending to the margin.

FRUCTIFICATION — Clusters of capsules linear, becoming confluent when in perfection, the thecæ of a bright reddish brown colour.

HABITAT — Moist rocks in mountainous localities. Near Buxton, and in Cave Dale, Castleton.

16.



LENIUM VIRIDE

Green Spleenwort

ASPLENIUM RUTA-MURARIA, *Linn.*

RUE-LEAVED SPLEENWORT.

ROOT — Radicles long, black and wiry; caudex stout, tufted, and scaly.

FROND — Sub-triangular, bi-pinnate, from two to six inches long.

STIPES — About half the length of the frond, of a dark green colour, and grooved.

PINNÆ — Alternate and pinnate.

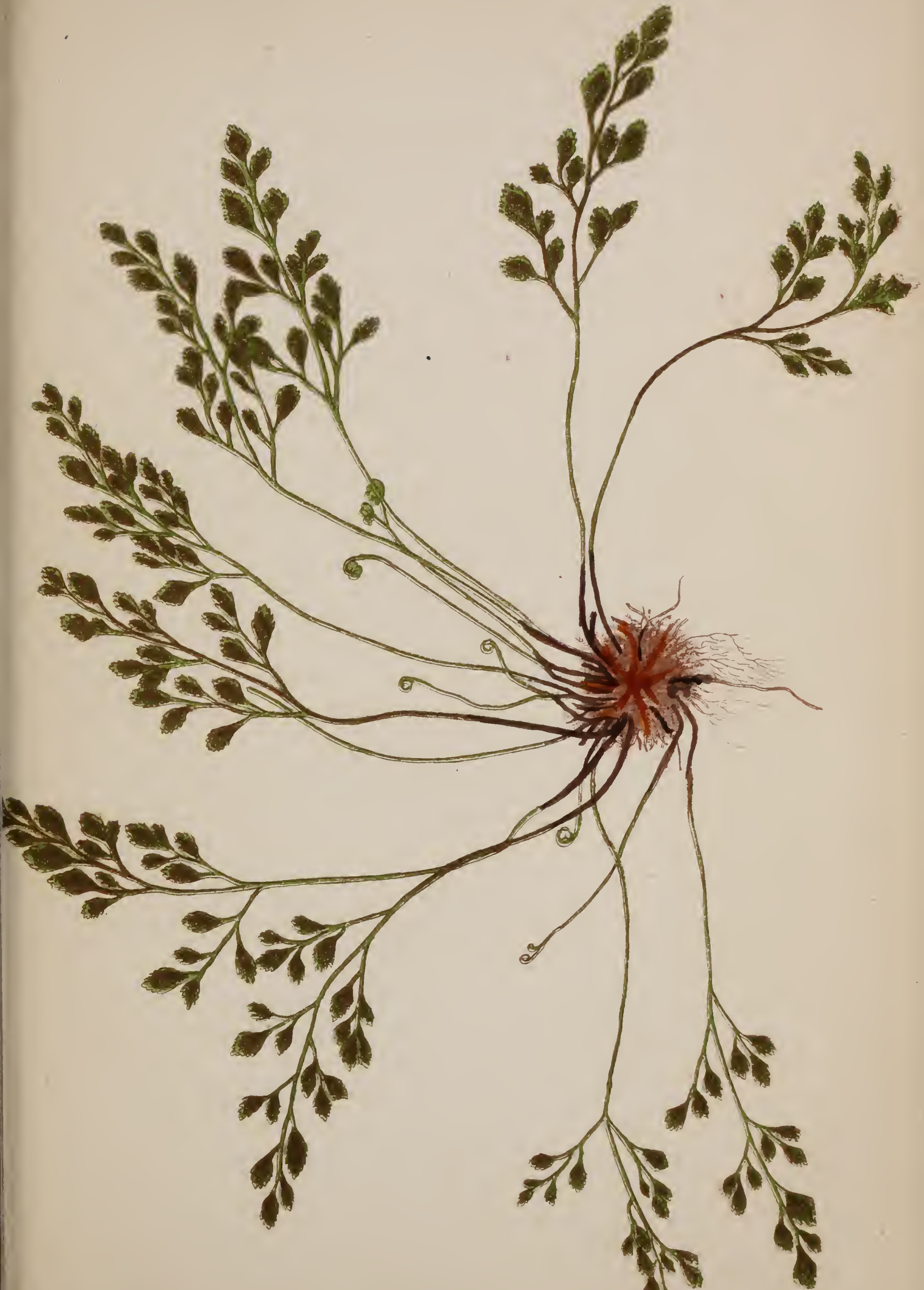
PINNULES — Stalked, of an oblong diamond shape, the apices serrated and more or less rounded, varying very much on the same root.

VENATION — Veins radiating from the base, each vein terminating in a serrature.

FRUCTIFICATION — Sori numerous, linear, generally on the midveins, becoming confluent in Autumn.

HABITAT — Old walls and crevices of rocks. Very generally distributed in the Low and High Peak.

17



ASPLENIUM RUTA-MURARIA

Rue-leaved Spleenwort

CETERACH OFFICINARUM, *Willd.*

SCALY SPLEENWORT.

ROOT — Black, wiry, and branched; caudex brown, stout, and tufted.

FRONDS — Numerous, oblong-linear, pinnatifid, thick, and fleshy; the whole underside covered with scales of a rusty brown color.

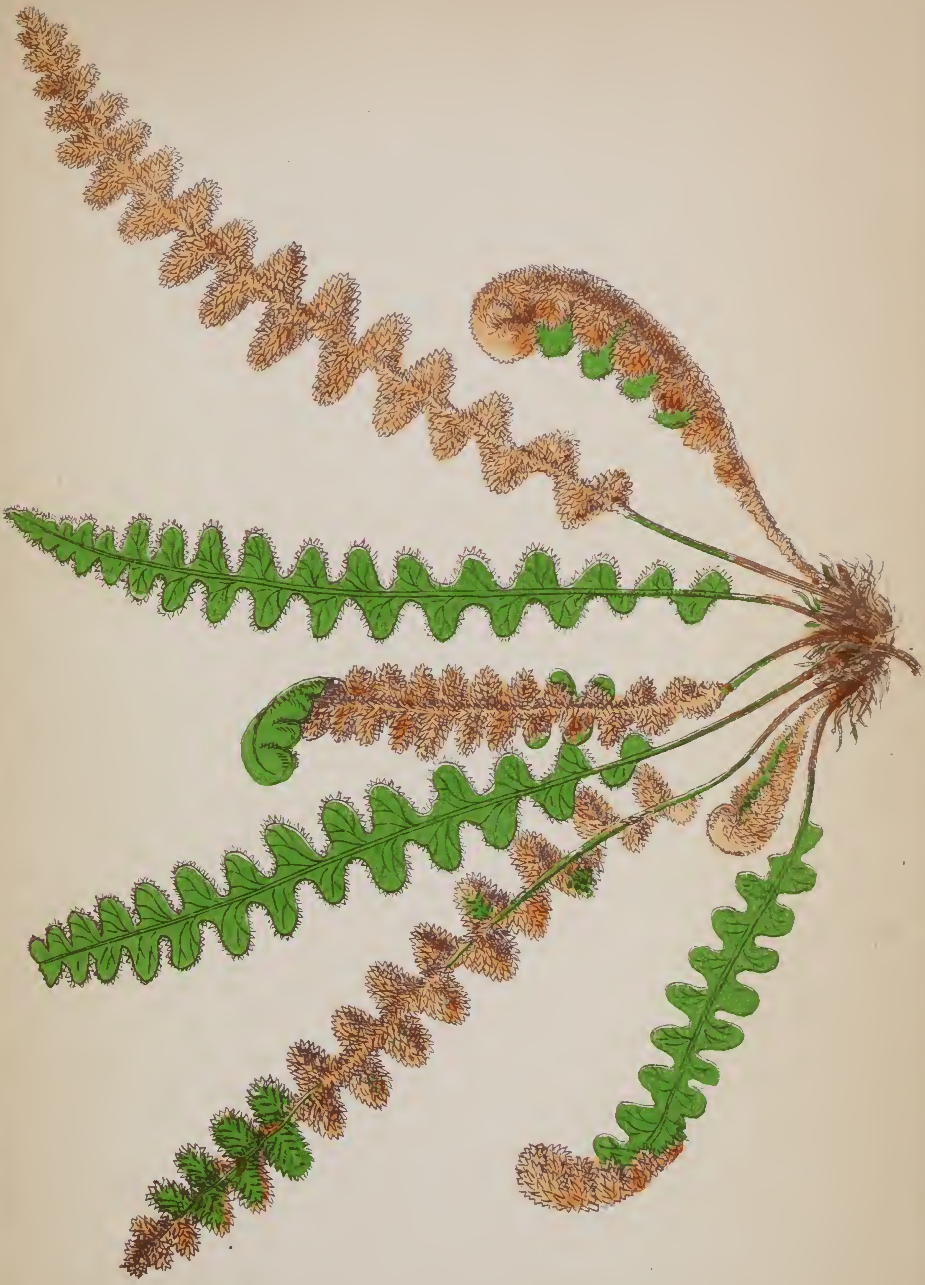
STIPES — Short, clothed with pointed scales.

PINNÆ — Rounded, and occasionally crenate, alternate.

VENATION — Midvein sinuous, lateral veins branching alternately and obliquely from the midvein, each lateral vein having two or more branches.

FRUCTIFICATION — Linear, clusters of capsules on the anterior branch of the lateral veins, covered by scales: for a minute account of which see *Newman*, page 280.

HABITAT — Crevices of rocks and old walls, on Limestone soils. Near Dovedale, Lathkil Dale, &c.



CETERACH OFFICINARUM

Scaly Spleenwort

SCOLOPENDRIUM VULGARE, *Smith.*

COMMON HART'S TONGUE.

ROOT — Radicles black, strong, of great length, penetrating deeply; caudex tufted.

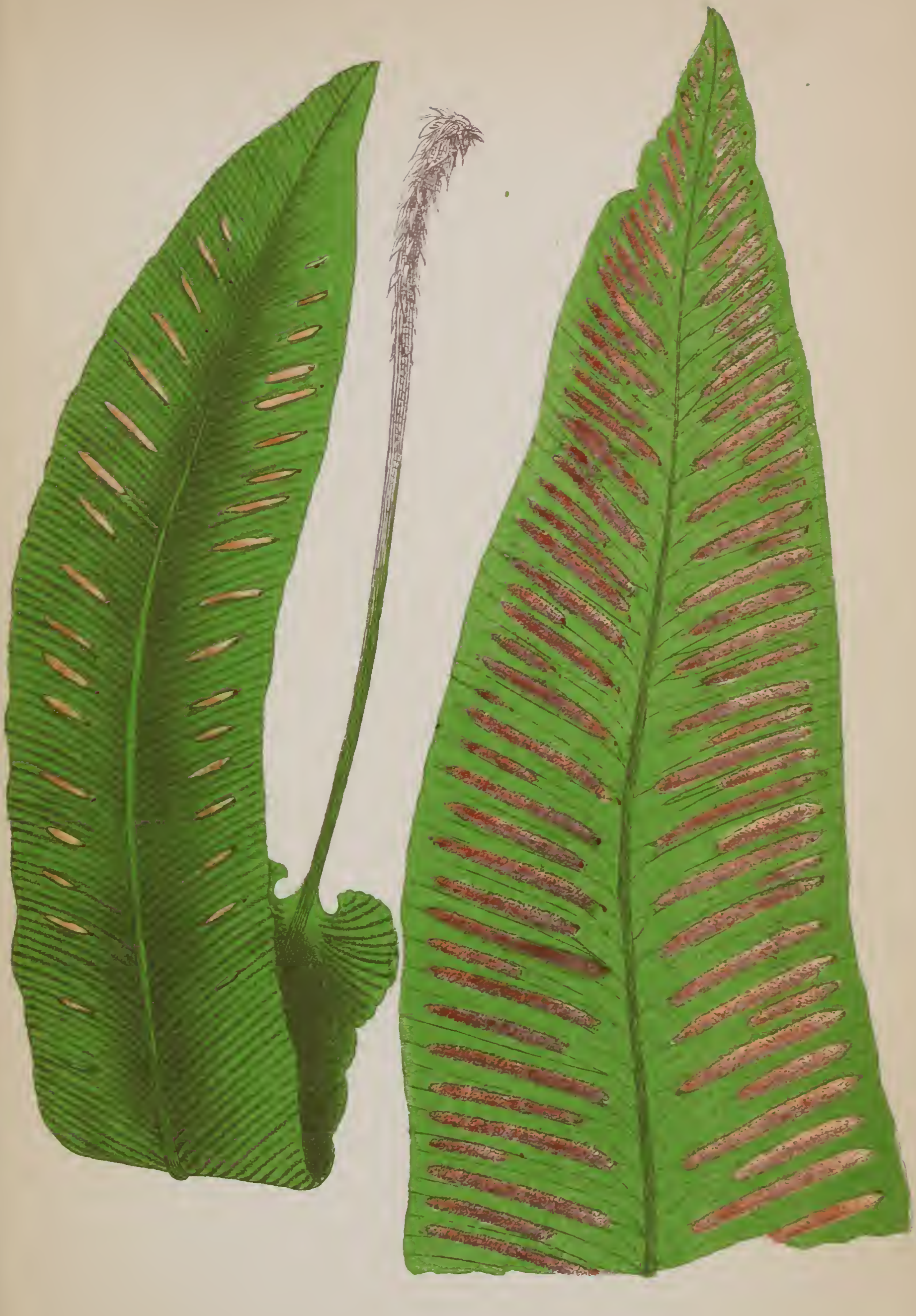
FROND — Strap-shaped, linear, in the ordinary state undivided; acute at the apex, cordate at the base.

STIPES — About one-third the length of the frond, of a brown purple colour, scaly at the base.

VENATION — Veins branched directly from the main rachis, the branches becoming forked; each division of the fork becomes itself again forked, about midway between the rachis and the margin.

FRUCTIFICATION — Placed between the outer branches of two sets of veins, and consisting of a linear involucre covering the linear mass of capsules, sometimes nearly occupying the breadth between the rachis and the margin, but never quite reaching either. Often alternately long and short.

HABITAT — Most plentiful among stones on sides of hills, and in woods; generally distributed over the county.



SCOLOPENDRIUM VULGARE

Hart's Tongue

OSMUNDA REGALIS, *Linn.*

FLOWERING FERN.

ROOTS — Radicles strong and fibrous, caudex large, often rising from a trunk-stock of matted fibres a foot high or more, and many feet in circumference.

FRONDS — Fertile and barren. The barren fronds external, erect and pinnate.

STIPES — As long as the frond.

PINNÆ — Opposite, subovate, pinnate.

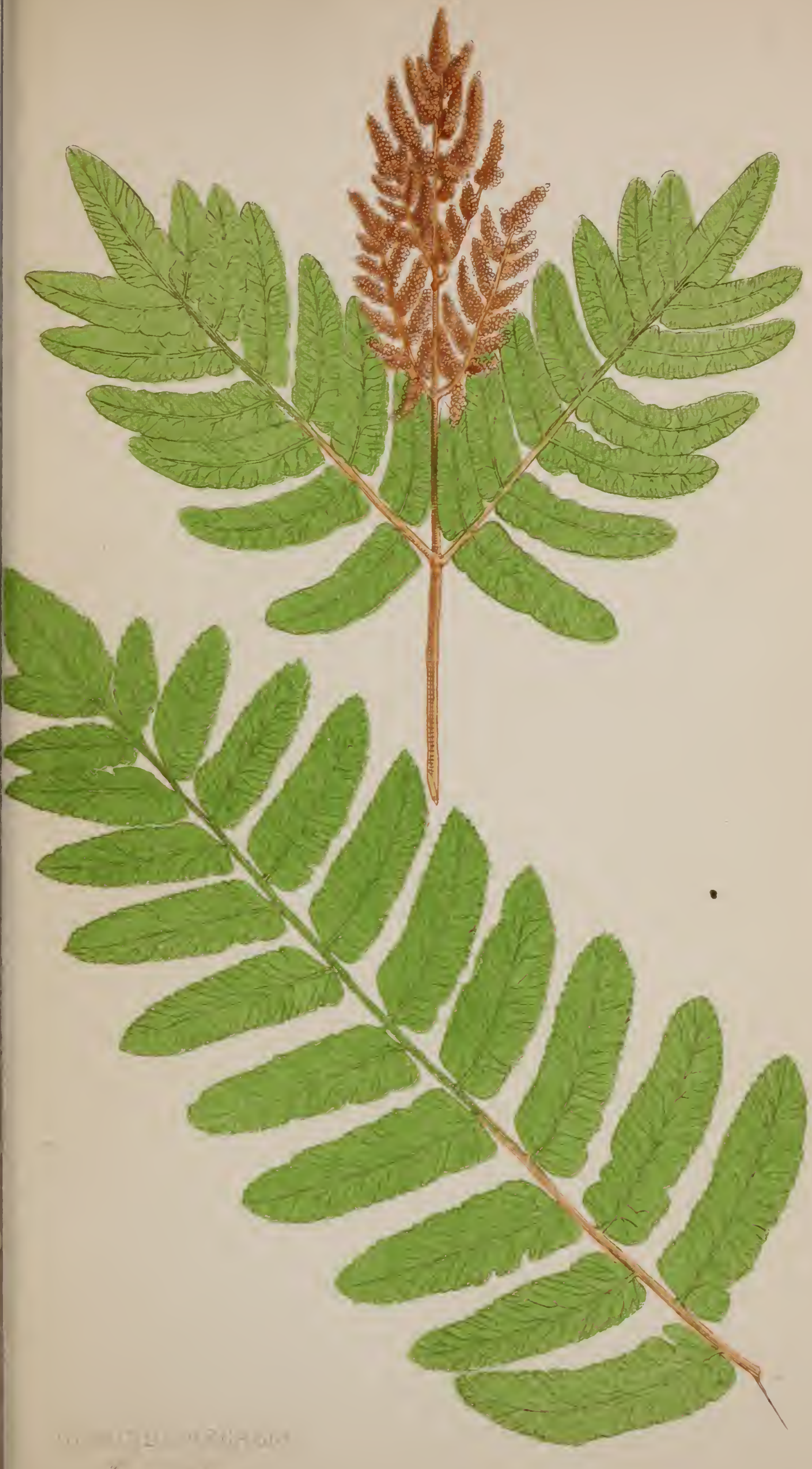
PINNULES — Linear-oblong, cordate, in pairs, crenate, rounded at the point: the apex of the fertile frond consists of a spike-like cluster of spores.

VENATION — Prominent, lateral veins branching alternately from the midvein, each vein having three or four branches, which extend to the margin.

FRUCTIFICATION — Spherical clusters of capsules on each lateral vein, occupying the summit of the central fronds: the leafy part is often quite lost, the whole of the pinnule, and even of the frond, becoming a spike-shaped mass of capsules.

HABITAT — Damp, and boggy places.

LOCALITY — Near Ashbourne.



OSMUNDA REGALIS

Royal Fern

BOTRYCHIUM LUNARIA, *Swartz.*

MOONWORT.

ROOT — Long and wiry, with numerous branches.

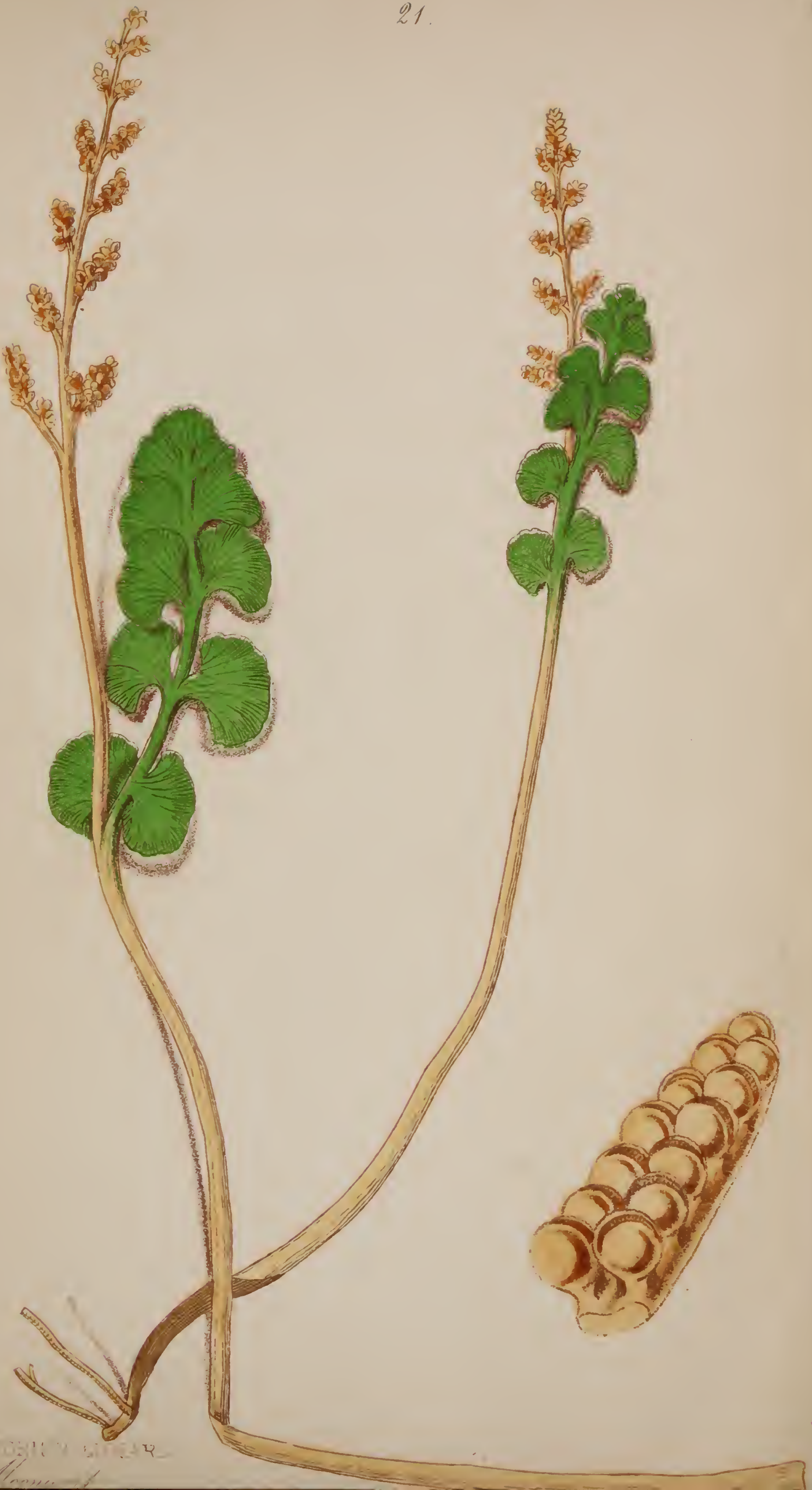
FRONDS—From three to nine inches in length, consisting of a barren and a fruit-bearing branch, rising from one round succulent stipes, sheathed at the base. The barren leafy frond is pinnatifid; the pinnæ alternate, and fan shaped; margin somewhat crenate. Fertile frond pinnate, pinnæ alternate; the lower pinnæ pinnate.

PINNULES — The pinnules of the fertile frond bear globular capsules, when ripe, of an orange yellow; which eventually burst and expel the spores.

VENATION — Veins in the pinnæ of the leafy portion of the frond, radiating from the base, both simple and branched.

HABITAT — On old mine hillocks, and on dry turfy and boggy slopes, exposed to the sun. Matlock, and other parts of Derbyshire.

21.



BOTRYCHIUM LUNARIA

Moonwort

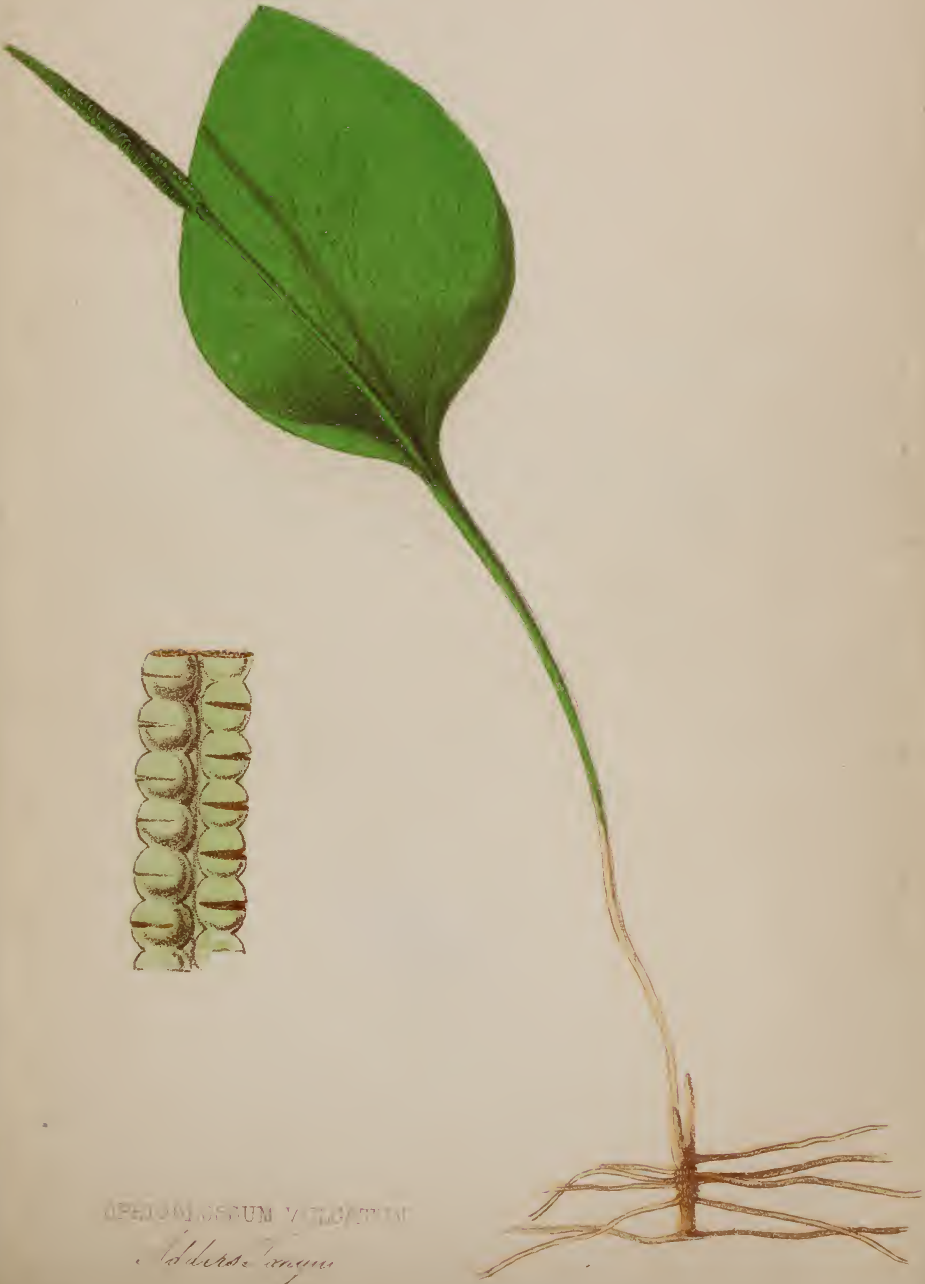
OPHIOGLOSSUM VULGATUM, *Linn.*

ADDER'S TONGUE.

ROOT — Long, branching, and brittle.

FRONDS — Of two kinds, barren and fertile on one stalk; the barren one being a fleshy, deep green, ovate, pointed leaf, rising from a thin succulent stipes. The stipes is about twice the length of the frond, and nearly the whole of it is in the earth. The spore-bearing frond consists of a narrow, spike-shaped tongue, rising from the base of the barren frond, lying in the hollow of it, and becoming eventually taller. The spike consists of two parallel rows of globular capsules; filled with fine dust like spores, which when ripe burst in a similar manner to *Botrychium Lunaria.*

HABITAT — Pastures and meadow land, common. Matlock-Bath and other places.



OPHIOGLOSSUM VULGATUM

Adders Tongue

It is particularly requested, that if any new or doubtful species of Ferns are met with by any Readers in this County, they would kindly send a Plant or Frond to the Rev. Gerard Smith, Osmaston, near Ashbourne, or Mr. W. E. Howe, Matlock-Bath, for examination and identification.

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